

TO THE BOARD OF DIRECTORS

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FILED IN 3-99CV1154-M

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CIVIL ACTION NO. 3-99CV1154-M
IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

PRINTING RESEARCH, INC. and HOWARD W. DEMOORE,
Plaintiffs
v.
WILLIAMSON PRINTING CORPORATION, BILL L. DAVIS and
JESSE S. WILLIAMSON,
Defendants.

ORAL AND VIDEOTAPED DEPOSITION OF
JOHN W. BIRD

September 12, 2000

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EXHIBITS IN
SEPARATE BINDER

ORIGINAL

1 **ANSWERS AND DEPOSITION OF JOHN W. BIRD**, a witness
 2 produced on behalf of Defendants, taken in the above
 3 styled and numbered cause at 10:22 A.M. on the 12th day
 4 of September, 2000, before Tami L. Slater, Certified
 5 Shorthand Reporter, Certificate No. 7383, in and for the
 6 State of Texas, recorded and transcribed utilizing
 7 computerized stenography and transcription, taken at the
 8 Law Offices of Worsham Forsythe Woolridge, L.L.P., 1601
 9 Bryan Street, 30th Floor, located in the City of Dallas,
 10 County of Dallas, State of Texas, pursuant to Notice of
 11 Deposition of John W. Bird and in accordance with the
 12 agreement hereinafter set forth.

13 * * * * *

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16 ALSO PRESENT:

17 Mr. Bill Davis, Williamson Printing Corporation

18 Mr. Jerry Williamson, Williamson Printing
 19 Corporation

20 Mr. Jess Williamson, Williamson Printing
 21 Corporation

22 Mr. Howard DeMoore, Printing Research, Inc.

23 Mr. Ron Rendleman, Printing Research, Inc.

24 Mr. David Douglas, Printing Research, Inc.

25 Mr. John Fogg, Videographer

* * * * *

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P R O C E E D I N G S :

(Deposition Exhibit Nos. 1 through 17
marked.)

THE VIDEOGRAPHER: The time is 10:22 a.m.
We're on the record.

10:22

JOHN W. BIRD,
having been first duly sworn, testified as follows:

MR. PINKERTON: Do you want us to give on
the record appearances?

THE REPORTER: Sure. That would be
great.

MR. PINKERTON: Okay. I'm John Pinkerton
with Worsham Forsythe & Woolridge representing the
Defendants.

MR. FALK: Bob Falk of Falk & Fish
representing the Defendants.

10:23

MR. SWEENEY: Marty Sweeney of Cozen and
O'Connor representing the Plaintiffs.

MR. WILSON: Steve Wilson with
Plaintiffs.

10:23

MR. HARRIS: William D. Harris, Jr.,
commonly known as Bill Harris, Plaintiffs' counsel.

Do you want a round-robin of persons
present here just to make sure to get a good list?

MR. PINKERTON: We can do that.

1 Bill, why don't you go ahead?

2 MR. DAVIS: I'm Bill Davis with
3 Williamson Printing Company, the Defendant.

4 MR. JERRY WILLIAMSON: Jerry Williamson
5 with Williamson Printing Corporation.

6 MR. JESSE WILLIAMSON: Jesse Williamson
7 with Williamson Printing Corporation.

8 MR. RENDLEMAN: Ron Rendleman with
9 Printing Research.

10 MR. DOUGLAS: David Douglas with Printing
11 Research.

10:23

12 MR. DEMOORE: Howard DeMoore, Printing
13 Research.

14 **EXAMINATION**

15 BY MR. PINKERTON:

16 Q. Mr. Bird, would you tell us your full name,
17 please.

18 A. John William Bird.

19 Q. Where do you live?

20 A. In Connecticut.

10:24

21 Q. And what's your present residence address?

22 A. It is 9 Sasqua Trail, Weston, Connecticut.

23 Q. Mr. Bird, is it correct that you have appeared
24 here today voluntarily at the request of counsel for
25 both parties in this case, both myself and counsel for

10:24

1 the Plaintiffs?

10:

2 A. Yes.

3 MR. HARRIS: Let the record show that we
4 have made no request for Mr. Bird's appearance. We have
5 written a letter that indicated we understood that you
6 were having him come.

10:24

7 And we are happy to see him, and we have
8 agreed with you something about defrayal of expenses and
9 travel and so on. We've done that. But we have not
10 noticed the witness as a deponent, and he is not our
11 witness.

10:24

12 MR. PINKERTON: Well, we -- we did notice
13 the witness, but would you agree with me, Mr. Harris,
14 that you and I both agreed that I would contact Mr. Bird
15 to see if he would come to Dallas voluntarily for the
16 purposes of taking his deposition?

10:25

17 MR. HARRIS: I did agree with you that
18 that would be fine because I certainly wouldn't have
19 wanted to have to pay when you noticed his deposition up
20 in the east.

10:25

21 MR. PINKERTON: Okay.

22 Q. (BY MR. PINKERTON) And so you have -- you
23 have come here today, again, pursuant to the request and
24 pursuant to the discussions that just -- Mr. Harris had
25 talked about?

10:..

1 A. Yes. 10:25

2 Q. Okay. What is your present occupation,
3 Mr. Bird?

4 A. President of JB Machinery Incorporated.

5 Q. And where is JB Machinery Incorporated? 10:25

6 A. At 9 Sasqua Trail, Weston, Connecticut.

7 Q. What is the business of JB Machinery?

8 A. It is in the business of selling equipment to
9 the printing industry.

10 Q. How many years of experience do you have in 10:26
11 the printing industry?

12 A. Approximately 35.

13 Q. And that would have been starting
14 approximately when?

15 A. 1960. 10:26

16 Q. We've got your CV, your curriculum vitae.

17 MR. PINKERTON: And for the record, this
18 is Defendant's Exhibit Bird 1, and it was produced as
19 W000944.

20 Q. (BY MR. PINKERTON) Let you take a look at 10:26
21 Exhibit 1, please, Mr. Bird.

22 (Documents handed to witness.)

23 A. (Witness reviews documents.)

24 Q. Can you identify that for us, please?

25 A. That is my curriculum vitae up to my leaving 10:27

1 United Kingdom.

2 Q. Okay. So we need to complete it from what,
3 1982 --

4 A. January 1982 through today.

5 Q. -- to today, okay.

6 MR. HARRIS: Can you read back the
7 answer, please? I've got my ears turned wrong, and Mr.
8 Bird was speaking rather softly and effectively, but I
9 didn't get it.

10 THE REPORTER: Yes, sir.

11 (Record read by reporter.)

12 MR. HARRIS: Thank you.

13 Q. (BY MR. PINKERTON) First of all, where did
14 you grow up, Mr. Bird?

15 A. In London, England.

16 Q. And were you educated in England?

17 A. Yes.

18 Q. Okay. What degrees do you have?

19 A. I don't have any formal degrees.

20 Q. Okay.

21 A. I have -- no, I don't have any formal degrees.

22 Q. What formal educational training have you had?

23 A. Attended the London College of Printing
24 through '60-'65 and obtained a Certificate of Advanced
25 Ink Technology.

1 Q. Advanced ink technology? 10:28

2 A. Yes.

3 Q. Any other degrees?

4 A. No.

5 Q. Okay. If you would, please, just go through 10:28
6 your CV, these different companies that are indicated
7 here that you worked for, and tell us generally what you
8 did at those companies.

9 A. Ault & Wiborg Limited was a printing ink and
10 roller manufacturer. I joined that corporation with a 10:28
11 view to, hopefully, being transferred into the
12 laboratory where I had ambitions to become a chemist, an
13 ink chemist, and was able to achieve those goals by the
14 time I was 19 years of old -- of age.

15 And in 1965, left that corporation as a 10:29
16 development chemist to join a corporation called Sericol
17 Group. Sericol Group is a corporation that manufactures
18 screen printing inks and was responsible for the
19 development of both coating and drying techniques for
20 the -- as well as ink technology, all related to screen 10:29
21 printing.

22 I should add that my Ault & Wiborg
23 experience was related to litho and letter press
24 printing inks.

25 I joined McCorquodale Plastics/Associated 10:29

1 Trapinex Limited as a works chemist for the corporation
2 with views to developing screen printing inks and litho
3 inks for the manufacturer of plastic signs and credit
4 cards and was promoted to works manager by -- by the
5 time I left that corporation.

6 I had joined and was a partner in a
7 corporation called Print Dimensions between '74 and '77
8 where we were manufacturing specialists,
9 three-dimensional plastic products that we were having
10 litho printed, and left their employ to join some very
11 good friends and associates that I'd known for a number
12 of years to start up a drying specialist corporation in
13 England, which we named Colordy Limited.

14 I was a founding partner of that company,
15 and our speciality was to promote, to develop both
16 drying for litho screen printing and any allied
17 applications of drying systems.

18 At that point in time, drying was not a
19 buzz word in the industry, and we thought of ourselves
20 as very cutting edge corporation [sic].

21 Q. What products did you actually -- what drying
22 products did you actually develop at Colordy?

23 A. We -- we developed what is sometimes called --
24 called "UV drying system." We developed that system up
25 for -- for use in litho presses as well as screen

1 printing. And we pioneered infrared drying in litho
2 presses.

10:32

3 In fact, we were the first to install
4 infrared drying equipment, shortwave infrared drying
5 equipment, in the UK at that time.

10:32

6 Q. Was this drying equipment that you designed
7 and had manufactured, or was it designed and
8 manufactured by you?

9 A. We -- we were always, as a -- as a three-man
10 partnership, we were always -- discussed and developed
11 within the corporation the needs and the requirements
12 and always had engineers that would actually make what
13 it was that we felt we needed to have. I am not an
14 engineer and don't pretend to be.

10:32

15 Q. Okay. Were those products then made by some
16 company other than your company?

10:32

17 A. We had product made outside. We did have our
18 own engineers, but essentially, we drove the -- the
19 manufacture of that equipment and the design of that
20 equipment through the requirements of what we perceived
21 the market needed and our customers needed.

10:33

22 Q. Okay. Would you bring us up to date, then, go
23 ahead and complete your CV from 1982 up to the present?
24 Just give us the companies --

25 A. Highlights.

10:33

1 Q. -- yes -- the companies that you worked for
2 and some of the highlights of each of those companies.

3 A. In 1982, I came to the United States, and
4 within a year, I formed my own corporation, which was a
5 partnership with a Swedish company. And we named that
6 company Cotordry.

7 That company was set up to sell a Swedish
8 infrared drying system or set of drying systems. It was
9 also set up to sell my old English company's UV drying
10 systems.

11 And we, after a short period, started to
12 develop our own coating systems so that our coating
13 systems were made in the United States, and the drying
14 systems were made overseas in Europe.

15 Q. How long were you with that company?

16 A. I owned and operated that company through --
17 '83 through '91.

18 Q. '83 through '91. And what was the name of the
19 company?

20 A. Cotordry, C-O-T-O-R-D-R-Y.

21 Q. Would you describe the coating systems that
22 you developed at Cotordry?

23 A. We developed a three-roll coating system that
24 was based on a Jim Lester patent out of Canada, the
25 principle of which I was very excited about and thought

1 was a very, very good system.

10:35

2 We took that system, developed it for
3 application at the end of litho presses with -- with Jim
4 Lester's consent.

5 And we took that from being a
6 straightforward blanket coater, which was the
7 state-of-the-art at that time, and took it to coating at
8 both the plate and the blanket cylinder of a litho press
9 so that the -- the question of register, which had
10 always been a problem in the coating industry, would be
11 resolved since there would be the ability to -- to
12 register from that position.

10:35

10:35

TOP SECRET

13 Q. Was this a retractable coater?

14 A. It was a retractable, or sometimes called
15 "rack-back" --

10:35

16 Q. Okay.

17 A. -- type coater.

18 Q. Was a patent obtained on that coater?

19 A. The -- a patent was obtained on that coater as
20 a plate and blanket application, yes.

10:36

21 Q. Okay. Would you identify, if you would,
22 please, from a group of patents that I'll give you,
23 which patent -- patent or patents applied to that coater
24 that you just described.

25 (Documents handed to witness.)

10:36

1 MR. PINKERTON: And for the record, let 10
2 me -- let me just for the record, Bird 7 is the 556
3 Patent, Bird 8 is the 903 Patent, Bird Exhibit 9 is the
4 070 Patent, and Bird 10 is the 992 Patent.

5 (Documents handed to witness.) 10:37

6 MR. HARRIS: What was your number on the
7 Bird 9?

8 MR. PINKERTON: Let's see, Bird 9 -- let
9 me see it, Mr. Bird.

10 (Documents handed to counsel.) 10:37

11 MR. PINKERTON: 070.

12 MR. HARRIS: All right. Thank you.

13 MR. PINKERTON: You're welcome.

14 (Documents handed to witness.)

15 A. The patent number here 4,796,556 granted Jan 10:37
16 10/89 is the patent that we're referring to. It's the
17 adjustable coating and printing apparatus.

18 Q. (BY MR. PINKERTON) And that is exhibit what?

19 A. That is Exhibit Bird 7.

20 Q. Okay. All right. So that's the only patent 10:38
21 out of the group of four that I gave you that applied to
22 that three-roll coating system?

23 A. Correct.

24 Q. Okay. Okay. That three-roll coating system,
25 was it sold by coat and dry -- Cotordry? 10:

1 A. It was sold by Cotordry, yes.

10:38

2 Q. And did it have a name or some kind of a
3 number?

4 A. We called it a Plate/Blanket Coater.

5 Q. Okay. Any other coating systems that you
6 developed at Cotordry?

10:38

7 A. No.

8 Q. Okay. So in 1991, where did you go to work
9 then?

10 A. In '91, I went to work with Printing Research
11 Incorporated. And --

10:39

12 Q. Okay. That's the Plaintiff in this lawsuit?

13 A. Yes, it is.

14 Q. Okay.

15 A. I was brought on board as a consultant with
16 that company and served as a consultant through January
17 '92. In January '92, I was made a -- an employee and
18 served from '92 through ninety -- January '97.

10:39

19 Q. Okay. Prior to the time that you came to work
20 for Printing Research, did you obtain patents on other
21 devices or products other than the one patent that you
22 have referred to here as Exhibit 7?

10:39

23 A. Would you mind repeating that?

24 Q. Did you have other patents that were issued to
25 you or a company that you owned other than Exhibit 7

10:40

1 that we've talked about?

2 A. Yes.

3 Q. Okay. Before you came to work for Printing
4 Research?

5 A. Yes. Yes.

6 Q. Okay. Take a look at the exhibits before you.
7 Are any of those those patents?

8 A. Yes. Yes, they are.

9 Q. Okay. Would you just identify the patent
10 number and the exhibit number and tell us what those
11 patents -- what products those relate to and when they
12 were developed?

13 A. Exhibit No. Bird 8, Patent No. 4,841,903,
14 issued June 27, '89, was for an interstation drying
15 system which was based on the use of hot air to drive
16 moisture away from the -- from the sheet, the printed
17 sheet.

18 Q. Okay. Now, when was -- did that relate to a
19 product that you had developed?

20 A. Yes. We called it "HV," or high-velocity, hot
21 air drying.

22 Q. And where were you working when that product
23 was developed?

24 A. For Cotordry.

25 Q. So Cotordry had the coater, and it also had

1 drying equipment that it had made and sold?

10:41

2 A. Yes.

3 Q. Okay. And was this a -- okay. So this one,
4 Exhibit 8, is a high-velocity drier?

5 A. Correct.

10:41

6 Q. Okay. And how about Exhibit 9?

7 A. Exhibit 9 is -- Bird 9 is 4,895,070, patent
8 issued January 23rd, 1990.

9 This was a liquid transfer assembly
10 method which was using similar principles to those as
11 used in the coating application wherein we were running
12 differentials at the plate cylinder and with gaps at the
13 plate cylinder. It was a minimalized coating
14 application of water.

10:41

15 Q. And was that developed at Cotordry?

10:42

16 A. Yes.

17 Q. And also, was that a product that was sold
18 there?

19 A. No, we never --

20 Q. Okay.

21 A. -- we never brought it to market.

22 Q. Okay. Exhibit 10, would you tell us what
23 patent number that is and identify it, please?

24 A. Exhibit Bird 10 is 4,939,992, date of patent
25 July 10, 1990.

10:42

1 This was flexographic high-velocity hot
2 air drying system used for the drying of flexographic
3 inks at interstation positions or between flexo printing
4 stations.

5 Q. Was that a product that was brought to
6 market -- or did that patent relate to a product that
7 was brought to market?

8 A. Yes, it was.

9 Q. And what was that product?

10 A. We call it "HVF," high-velocity hot air F
11 flexor.

12 Q. Okay. So at the time that you came to work
13 for Printing Research in 1991, what did you consider
14 your experience had been in at that point in time?

15 A. Coating and drying systems in particular.

16 Q. Okay. And so you had been with companies that
17 have both made and sold both coaters and driers?

18 A. Correct.

19 Q. Okay. Can you tell us the circumstances
20 pursuant to which you came to be employed by Printing
21 Research?

22 A. Yes. 1986, '87, or thereabouts, we had a
23 very -- we had built into a very profitable, very --
24 very nice corporation and employed, at that time, 13
25 individuals. And things were going along very nicely.

1 However, two things happened almost
2 simultaneously in '86, '87 in that the recession came
3 about, and at the same time the recession came about,
4 there was a major change at one of our, at that time,
5 major OEM accounts.

10:44

10:44

6 And I had a \$5 million turnover
7 corporation sales volume, and that company was
8 responsible for \$3 million of my sales volume.

9 They -- they had a management change, and
10 during that management change, it was decided by the new
11 management team that anybody associated -- any companies
12 associated with that corporation would not now be
13 considered or used as a supplier for that corporation.

10:45

14 So a sales volume of 5 million was
15 reduced to 2 million overnight. And the at the same --
16 in the same period, the recession came along.

10:45

17 So I found myself struggling for the next
18 three, four years trying to retain and to reaccomplish
19 the market position that I had managed to gain in the
20 previous years and found myself in a situation where the
21 only way that I could see going forward, despite the
22 fact that I felt that our product was certainly one of
23 the leading products in the marketplace, was to align
24 myself with someone to -- to sell the corporation,
25 essentially, and/or the ideas and the technology to move

10:45

10:46

1 forward. And that's what we did in '91.

2 Q. Okay. You say you did "that," would you
3 describe what was done, then, when you made that change?

4 A. In '91, we came to an agreement with Printing
5 Research where we would sell the technology and -- and
6 know-how of the -- of the products that we had, that we
7 would help in any way possible to sell, market, those
8 products and take Printing Research out of a -- a single
9 product manufacturer into a multiproduct manufacturer.

10 Q. In 1991, what was the product -- or what was
11 the business of Printing Research in 1991?

12 A. 1991, Printing Research made a -- an
13 antimarking system, which they manufacture still today,
14 which is known as Super Blue. It's an internationally
15 known and accepted and is a very profitable product
16 [sic].

17 Apart from that, they -- they had on the
18 drawing board a -- a coater that was a -- let me say it.
19 was an impression cylinder coater anilox device.

20 And they also had what was called a "back
21 vac." The back vac was an antimarking system, and it
22 was -- it was related to Super Blue, very much related
23 to Super Blue as a product.

24 Q. Was Printing Research interested then in
25 acquiring the technology and products that you had?

1 A. I believe so.

10:48

2 Q. And what kind of arrangement, if any, was made
3 with Printing Research with respect to those products
4 and technology?

5 A. The -- we were -- we sold, essentially, the
6 rights to the -- to all our patents. And there was a
7 licensing agreement that was struck between us. "Us"
8 being Birow, the owners of the patents, and Printing
9 Research.

10:48

10 Q. All right, sir. Let's take a look at Exhibit
11 Bird 11, which is Production Numbers W988 through 990.

10:48

12 (Documents handed to witness.)

13 Ask you to identify that, please, Mr.
14 Bird.

15 A. (Witness reviews documents.) Yes, this would
16 be the --

10:49

17 Q. Can you just tell us what that is?

18 A. That is the licensing agreement.

19 Q. And the licensing agreement was entered into
20 between who, what companies?

10:49

21 A. Between Birow Corporation and Printing
22 Research.

23 Q. And that was at the time that you went --
24 became a consultant for Printing Research?

25 A. Correct.

10:49

1 Q. And what -- what patents and technology did 10
2 they obtain rights to? "They" being Printing Research.

3 A. The -- the four exhibits that we've previously
4 discussed.

5 Q. All right. And for the record, are those 10:49
6 Exhibits Bird 7, 8, 9, and 10?

7 (Documents handed to witness.)

8 A. (Witness reviews documents.) They are indeed,
9 yes.

10 Q. Okay. So at the time you came to work for 10:50
11 Printing Research, did Printing Research have a
12 retractable coater --

13 A. No.

14 Q. -- that it was making and selling?

15 A. No. 10:50

16 Q. Okay. Did it have drying systems?

17 A. No.

18 Q. After you came to work for Printing Research
19 as, you say as, a consultant and then as an employee,
20 were the drying systems and the technology that you 10:50
21 brought developed so that they became products of PRI?

22 MR. HARRIS: Objected to as leading.

23 Q. (BY MR. PINKERTON) Just tell us, what was
24 developed from the technology, if anything, that you
25 brought with PRI in regard to drying [sic]? 10:50

1 A. The -- the drying systems that exist yet today
2 were all led by the -- by that technology that I brought
3 with me to Printing Research.

10:51

4 That includes infrared drying systems.
5 It includes the UV drying systems. It includes any of
6 the drying systems that they -- that they manufacture to
7 this date.

10:51

8 Q. Okay. Now, if you could -- are there others
9 besides the infrared and the UV drying systems?

10 A. They've had -- they did have a high-velocity
11 hot air drying system that I understand has been
12 developed further but is nonetheless still using all the
13 same principles that we brought to Printing Research,
14 yes.

10:51

15 Q. Okay. Now, in regard to the arrangement and
16 agreement that you had with Printing Research, you
17 talked about the exclusive license --

10:51

18 A. Right.

19 Q. -- pursuant to which rights to the technology
20 was acquired.

10:52

21 What was the -- the business arrangement
22 with respect to licensing that you had with Printing
23 Research?

24 They acquired technology. Did you get
25 anything?

10:52

1 A. Oh. Yes. Yes, I did. I was paid a
2 percentage of the -- of the sales made on those -- on
3 those licenses.

4 Q. Okay. You were paid a percentage of the sales
5 and that was pursuant to the agreement?

6 A. Yes.

7 Q. And sales on what products are we talking
8 about?

9 A. On any of the patented products.

10 Q. Okay. And so were you, in fact, paid
11 royalties by Printing Research?

12 A. Yes, indeed.

13 Q. For those products --

14 A. Yes.

15 Q. -- that you've described?

16 A. Yes.

17 Q. Okay. And what specific products were you
18 paid royalties on?

19 A. Specifically, the Plate/Blanket Coaters;
20 specifically, the high-velocity hot air drying systems.

21 Q. What about infrared drying?

22 A. Infrared drying, we didn't have any patents,
23 so it was -- it only applied to the patented -- patented
24 products.

25 Q. Okay. UV, was that patented?

1 A. It wasn't patented, no.

10:53

2 Q. Okay. So the patented items that you were
3 paid royalties on were the Plate/Blanket Coater, and the
4 high-velocity hot air drying?

5 A. Yes.

10:53

6 Q. Okay. Tell us, during the time that you were
7 with Printing Research, the various positions that you
8 had with the company.

9 A. I joined the company, as previously stated, as
10 a consultant from March '91 through January '92.

10:54

11 January '92, I was made a product
12 manager. The product manager was related to drying and
13 coating systems and, in fact, was labeled "capital
14 equipment."

15 And I was promoted to the rank of
16 Director of Sales and Marketing of Capital Equipment in
17 ninety -- I believe it was either '95, '96. It was
18 towards the end of my tenure with Printing Research.

10:54

19 Q. When -- when was the end of your tenure with
20 Printing Research?

10:55

21 A. January the 3rd, 1997.

22 Q. And what happened at that point in time to
23 terminate the relationship?

24 A. I was -- I came into office on the Monday
25 morning to report for duty as normal, and I was asked

10:55

1 into Mr. DeMoore's office and was presented a letter 10
2 which I was asked to read in front of Mr. DeMoore, Mr.
3 Garner and Mr. Schaffler.

4 And that letter stated that my position
5 was no longer in existence in the corporation and that I 10:55
6 would no longer be required to report for duty.

7 Q. So what did you then do?

8 A. I left.

9 Q. Left Printing Research?

10 A. Left Printing Research. Drove around for a 10:56
11 little while.

12 Q. Okay.

13 A. Went home. Thought about my options and spent
14 the next little while looking at what those options
15 might be, recognizing that it apparently had -- that 10:56
16 apparently the whole of the sales force had also been
17 let go.

18 It occurred to me that it might be an
19 opportunity to at least save some of my potential, I
20 believe, that existed in selling and making a 10:56
21 contribution by coming up with a plan that might be
22 beneficial to both myself and to Printing Research. And
23 at the same time, looked at other positions in the
24 industry.

25 In June of '97, I went back to Printing 10:

1 Research and laid down a plan which they accepted, which 10:57
2 was that I would act exclusively as sales and marketing
3 for them in the flexo printing industry exclusively and
4 converting industry where applicable for drying systems.

5 Q. And did you then make an arrangement with 10:57
6 Printing Research to do that?

7 A. Yes, I did. That arrangement was essentially
8 that I would get a commission on every piece of
9 equipment sold into that industry and that I would --
10 since it was a startup, that they would certainly 10:58
11 advance me, but nonetheless, those advances would be --
12 would be prorated against any commissions that -- that I
13 might earn during that period -- during any period.

14 Q. And how long did that relationship exist?

15 A. Oh, something like, I believe, nine months. 10:58

16 Q. Okay. And what happened to terminate that
17 relationship?

18 A. I was called into the office, and two points
19 were made to me. Well, several points were made.

20 One was that they, Printing Research, 10:58
21 wanted to reemploy me. And I have to say that I was
22 somewhat mystified as to why they would want to reemploy
23 me, certainly since we had parted in a rather strange
24 manner previously and that things were going, I thought,
25 particularly well at the time. 10:59

1 I'd outsold the entire sales force at 10
2 that point, to my knowledge, and it seemed that things
3 would -- would be good for Printing Research.

4 I was told that they wanted to reemploy
5 me, and there was no -- no alternative. And the reason 10:59
6 that they wanted to employ me was that I was being paid
7 too much.

8 Q. You're making too much in the commission
9 arrangement?

10 A. Yes. 10:59

11 Q. Okay. So what happened?

12 A. I had no option because I certainly was not
13 prepared to rejoin a corporation that had seen fit to --
14 to fire me for no reason, to this date, that I am aware
15 of. 11:00

16 Q. Okay. So you left Printing Research, then, in
17 approximately -- well, it would be March of '98?

18 A. In March of ninety -- yes. March of '98.

19 Q. Okay. And --

20 A. There was a 30-day notice period -- 11:00

21 Q. Okay.

22 A. -- so I had never started doing any business
23 until May or so. It was 30 days minimum that -- before
24 I started doing anything at all.

25 Q. So was it then that you set up and established 11:00

1 J B Machinery?

11:00

2 A. That's correct.

3 Q. Okay.

4 MR. PINKERTON: This might be a nice time
5 to take a short break, if we could.

11:00

6 THE VIDEOGRAPHER: Time is 11 o'clock
7 a.m. We're off the record.

8 (Recess from 11:00 a.m. to 11:15 a.m.)

9 THE VIDEOGRAPHER: Time is 11:15 a.m.
10 We're on the record.

11:15

11 Q. (BY MR. PINKERTON) Mr. Bird, let's go back
12 once again to your various positions you had at Printing
13 Research and just describe for me in a little bit more
14 detail what your duties and responsibilities were in
15 those various positions.

11:16

16 First of all, when you were a consultant
17 in -- from March '91 to January '92 as you testified,
18 what basically were your duties then?

19 A. We had to create a -- a product information
20 sheet from ground zero since there clearly wasn't any --
21 any product allied to the industry or the part of the
22 industry that I was bringing to the company.

11:16

23 So we had to create product information
24 brochures that were computer generated, but nonetheless,
25 we produced both brochures that would relate to the

11:16

1 interstation drying for litho applications, infrared
2 drying, and UV drying and the Plate/Blanket Coater.
3 That we did.

4 That was -- that was a fairly lengthy
5 task because, again, we had no -- no grounding within
6 the corporation to do that, and it was also looking at
7 other sources of production, since the UV system we were
8 clearly not going to be purchasing from England, which
9 is where I had previously been purchasing it from, and
10 changed our source to a corporation called Amjo.

11 And we actually, at that time, also
12 looked at Amjo as a source of buying infrared equipment.
13 We would specify what it was that we wanted. I would,
14 in fact, lead that part of it since, again, there was no
15 background within the corporation for those types of
16 pieces of equipment.

17 And the -- as far as the coater, we
18 continued to deal with efforts towards the machines up
19 in New Jersey, so that wasn't -- that wasn't such a --
20 such a concern.

21 But certainly, the concern at that stage
22 had been to get all the drying equipment associated
23 purchased in from -- from new sources at the same time
24 as creating product information brochures to try and
25 create a marketplace for a company that essentially had

1 been known for antimarking systems. 11:18

2 Q. Okay. Approximately when did that --

3 A. Very well known for antimarking systems, but
4 nonetheless, that was their -- their claim to fame.

5 Q. Approximately when did Printing Research, with 11:18
6 the work that you were doing, first offer the
7 Plate/Blanket Coater as a product?

8 A. We -- I will say that Printing Research
9 purchased a Plate/Blanket Coater for a two-color
10 Heidelberg machine that had been purchased. 11:19

11 I can't be certain about the date, but we
12 certainly purchased a two-color Heidelberg machine
13 during my tenure. Was that in '91? I'm not sure. It
14 might have been '92 that it was purchased, but we
15 certainly put a Plate/Blanket Coater on it so that we 11:19
16 would have a demonstration site.

17 And we also installed an Amjo-supplied
18 shortwave infrared drawing system on that machine,
19 again, for demonstration purposes and development
20 purposes. 11:19

21 Q. Now, the coater that was put on the Heidelberg
22 machine, was that the first interpress coater that --

23 MR. HARRIS: Objected to as leading.

24 Q. (BY MR. PINKERTON) -- Research had?

25 You can go ahead and answer. 11:20

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1 MR. HARRIS: Excuse me, go ahead. But 11:
2 objected to as leading.

3 A. I believe it was -- there was a -- there was
4 the in-house coater that I had alluded to previously
5 that was on the drawing boards, which was, at that time, 11:20
6 being called an EZ Coater, which was an anilox roll
7 applicator that fit in the delivery of the -- of a litho
8 press --

9 Q. (BY MR. PINKERTON) Okay. I should have
10 said --

11 A. -- and Heidelberg in particular.

12 Q. Okay. Let me change the question. Was
13 that --

14 A. So which one came first as installation, I
15 couldn't swear to, but -- 11:20

16 Q. The -- the unit that was placed on the
17 Heidelberg press that you talked about --

18 A. Correct.

19 Q. -- was it a retractable unit?

20 A. Yes. 11:20

21 Q. And it was the three-roll coater that you
22 previously described?

23 A. Yes.

24 Q. Okay. And where did -- where did that
25 retractable coater come from? Where was it purchased 11:24

1 from?

11:21

2 A. It was purchased from Effertz Tools and
3 Machines in New Jersey.

4 Q. And had that -- was that company the one that
5 had previously made it for you?

11:21

6 A. Yes.

7 Q. And that's when you were with Birow?

8 A. Yes.

9 MR. HARRIS: Objected to as leading.

10 Q. (BY MR. PINKERTON) That's when you -- what
11 company were you with when you were buying those coaters
12 from Effertz?

11:21

13 A. Cotordry, which was the sales marketing
14 company for Birow.

15 Q. Okay. And Birow, for the record, is spelled
16 how?

11:21

17 A. B-I-R-O-W.

18 Q. Okay. Now, you talked about developing a
19 brochure when you were at Printing Research for the
20 Plate/Blanket Coater?

11:21

21 A. Yes.

22 Q. Take a look at Bird Exhibit 12 for me, please.

23 (Documents handed to witness.)

24 Can you identify that?

25 A. That was the -- this is the eventual brochure.

11:21

1 The original brochures that we produced were photocopy
2 brochures. This came probably a year or two into my
3 tenure with -- with Printing Research.

4 Q. So that's an evolution of the original
5 brochure?

6 A. It's an evolution of the -- of the original
7 brochure, yes.

8 Q. Does it depict the retractable printer coater
9 that you've described?

10 A. Yes, it does.

11 Q. And could you point that out for us, please,
12 on the brochure?

13 A. That's the -- that's on the third -- third
14 page in and -- and is -- in here, you're seeing the --
15 the motion to either a plate or a blanket cylinder.

16 Q. Okay. If you would, why don't you just circle
17 that, please, on exhibit 12.

18 A. (Witness complies.)

19 Q. And if you want to -- is it -- would it be
20 appropriate to circle the retraction mechanism as well,
21 as part of the device?

22 A. It is part of the device, yes.

23 Q. Okay. Let's go ahead and circle that, then.

24 A. (Witness complies.)

25 MR. HARRIS: Counsel, let me see where

1 it's been circled so --

11:22

2 MR. PINKERTON: Okay. Sure.

3 MR. HARRIS: -- I can circle --

4 THE WITNESS: Sure.

5 MR. HARRIS: -- my copy.

11:23

6 Thank you, Mr. Bird.

7 Q. (BY MR. PINKERTON) Basically, the -- would
8 the circle go around the entire picture that's shown
9 there?

10 A. It should, yes.

11:23

11 Q. Okay.

12 A. Yeah.

13 It should be added, I believe, the
14 retraction system was one of several. That wasn't the
15 only retraction system that we -- that we offered.

11:23

16 Q. How do you describe the retraction system
17 that's shown there in Exhibit 12?

18 A. We call that the slide just because you -- you
19 had one motion slide up and down the -- up and down the
20 press.

11:23

21 Q. Okay. What other retraction mechanisms did
22 you have?

23 A. We had a retraction system whereby we would
24 have, essentially, three motions in that you would be
25 sitting on top of the press here, and then you would

11:23

1 drive forward.

2 And this is a more vertical delivery of a
3 press, so you'd have it coming forward, down, and then
4 into position. So there were three motions. We would
5 prefer this motion because it's more simple.

6 MR. HARRIS: "This" -- excuse me. Let me
7 say that the record --

8 MR. PINKERTON: Counsel --

9 MR. HARRIS: Let me say this.

10 The record can't tell -- when you just
11 say, "this," and you're pointing at something, the
12 record can't tell what you're pointing at. So would you
13 explain what you meant when you said, "this," and
14 brought your hand down.

15 THE WITNESS: Sure.

16 MR. HARRIS: Just explain where it is on
17 the drawing --

18 THE WITNESS: Okay.

19 MR. HARRIS: -- that you're talking
20 about.

21 THE WITNESS: When the coater is not in
22 use, it would sit on top of the delivery section, and
23 the delivery section being the end of the gooseneck,
24 as -- as is commonly called in the industry.

25 And it would have to be -- because of

1 the -- the vertical arrangement of that delivery, it's 11:24
 2 not possible or not easily achieved to have a -- a
 3 one-motion slide of a -- of a coater down into position
 4 without taking up a lot of room and -- and getting in
 5 the way of the operator when he's trying to work between 11:25
 6 units.

7 So what you do is, you -- you make the
 8 coater such that it will drive forward in the horizontal
 9 motion on top of the delivery. It will then drive down
 10 vertically in the delivery, and then drive forward 11:25
 11 horizontally to hit the blanket or plate position on
 12 that press.

13 Does that --

14 Q. (BY MR. PINKERTON) Let me ask --

15 THE WITNESS: -- justify it? 11:25

16 MR. HARRIS: I think that will due. And
 17 it won't matter whether or not we can find the place
 18 because you put it in words.

19 Q. (BY MR. PINKERTON) Mr. Bird, the retraction
 20 mechanism that you described that had the vertical 11:25
 21 orientation and then also the horizontal movement, is
 22 that relevant at all to Exhibit 7?

23 MR. HARRIS: Objected to as leading.

24 (Documents handed to witness.)

25 Q. (BY MR. PINKERTON) Let me withdraw the 11:26

1 question.

2 What's the retraction mechanism shown, if
3 any, in Exhibit 7?

4 A. In Exhibit 7 --

5 MR. HARRIS: Excepted to as using a
6 leading question to suggest the answer and then
7 abandoning the question and asking it in another way to
8 get exactly the same thing that was put in the leading
9 question.

10 MR. PINKERTON: I'm not sure that's an
11 objection, Counsel.

12 MR. HARRIS: It is. It may not --

13 MR. PINKERTON: It certainly --

14 MR. HARRIS: -- be a good one, but it is
15 an objection.

16 MR. PINKERTON: It's a lousy -- lousy
17 objection because there wasn't any intent to do that. I
18 was trying to accommodate your objection to the question
19 to make it nonleading. Now, if you wouldn't want me to
20 do that, then don't object.

21 Q. (BY MR. PINKERTON) Go ahead, Mr. Bird.

22 MR. HARRIS: I will object from time to
23 time, though I think you ask marvelous questions as a
24 rule, sir.

25 MR. PINKERTON: Thank you, sir.

1 Q. (BY MR. PINKERTON) Go ahead, Mr. Bird. 11:26

2 A. The -- the description here is exactly as
3 you -- as you state. It is a description of the second
4 movement, which is not the same as we show in the
5 brochure, yes. 11:27

6 Q. The second movement, did you characterize that
7 in any way? Do you call it anything?

8 A. No. We -- they were always retraction
9 systems. We always felt that it was immaterial. The --
10 the real motive and objective for us was to be able to 11:27
11 put a coater into a press without being -- and to be
12 able to retract that coater without being in the way of
13 the operator.

14 Q. Okay. Thank you.

15 (Documents handed to counsel.) 11:27

16 Did Printing --

17 A. And incidentally making it possible for the
18 operator to work on when in the retracted position.

19 Q. Okay. Did there come a time when Printing
20 Research developed a retractable coater with an anilox
21 roller? 11:28

22 A. Yes.

23 MR. HARRIS: Objected to as leading.

24 MR. PINKERTON: Okay.

25 Q. (BY MR. PINKERTON) When was that, sir? 11:28

1 A. They -- the EZ Coater, that again we've 11
2 referred to several times, was an anilox-supplied
3 coater. And that was -- that was on the drawing board,
4 as stated previously, in '91, March of '91, when I
5 arrived at Printing Research. 11:28

6 Q. Okay. Let me rephrase the question. I was
7 asking you in regard to a retractable --

8 A. Oh, excuse me.

9 Q. -- system, okay? So let me rephrase the
10 question. 11:28

11 Did there come a time when Printing
12 Research developed a retractable coater with an anilox
13 roller?

14 MR. HARRIS: Objected to as leading.

15 MR. PINKERTON: Thank you. 11:28

16 Q. (BY MR. PINKERTON) You can answer, Mr. Bird.
17 Yes or no, did there come a time --

18 A. Yes.

19 Q. -- when they did it?

20 A. Yes.

21 Q. When was that, sir?

22 A. That was -- again, I -- I couldn't swear to a
23 date, but I would suggest it was around '94, that sort
24 of -- that sort of time frame.

25 Q. Did that particular product have a name, a 11:

1 description?

11:29

2 A. We called it -- internally, we called it EZB,
3 which was marketing's preface. And with all of any
4 products that I've generally had anything to do with, I
5 always like to have a number of letters so that it's
6 easy to -- to determine which one's which. EZB meaning
7 EZ Blanket Coater.

11:29

8 Q. Okay. For the record, you're saying "E" --
9 the letters "E, Z," and then, "B" --

10 A. Correct.

11:29

11 Q. -- correct?

12 A. And that differentiated it from the original
13 EZ Coater, which was the one that I was confused with a
14 moment ago.

15 Q. Okay. So there was the -- the original coater
16 that was retractable, as I understand it based on your
17 testimony, was the Effertz device, which was a
18 three-roll coater; is that correct?

11:30

19 A. Correct.

20 Q. And then the next one was the retractable
21 coater, which was what? With an anilox roller?

11:30

22 A. That was the EZB.

23 Q. EZB. Okay. Was a brochure developed for that
24 product?

25 A. There was.

11:30

1 Q. Let me hand you what we've marked as Bird
2 Exhibit 13 and ask you if that product is depicted in
3 Exhibit 13?

4 (Documents handed to witness.)

5 MR. HARRIS: Objected to as leading.

6 A. It is.

7 MR. PINKERTON: Let me with -- let me
8 withdraw the question.

9 Q. (BY MR. PINKERTON) Identify, if you would
10 please, Exhibit 13.

11 A. Exhibit 13 is the EZ Print/Coat Family
12 brochure. It was designed to show the variety of
13 coating methods that we were offering to the marketplace
14 as available.

15 Q. Okay. Is there, depicted in that brochure,
16 the EZB Coater that you talked about?

17 A. There is, indeed.

18 Q. Okay. Would you -- if you would, tell us what
19 page that is on or we can circle where it's shown.

20 A. In relation to the -- to the layout of
21 these -- of these pinned together pages, it's page 3.

22 Q. Page 3?

23 A. And it's at the top of the page on the right,
24 and you'll see that it says, "EZ Blanket Coater." And
25 once again, hence the name EZB.

1 Q. All right. Can you circle the picture on the 11:31
2 brochure that shows the EZB Coater?

3 A. (Witness complies.)

4 Q. All right. Thank you.

5 (Documents handed to counsel.) 11:31

6 MR. HARRIS: Will I have the opportunity
7 to verify --

8 MR. PINKERTON: Sure.

9 MR. HARRIS: -- how it's been marked?

10 MR. PINKERTON: Sure. 11:32

11 MR. HARRIS: Thank you.

12 Q. (BY MR. PINKERTON) Your testimony, I think,
13 was that this was approximately the 1994 time frame?

14 A. I would estimate. The -- the brochure itself
15 probably was later than that. 11:32

16 Q. Okay.

17 A. The product, certainly, was probably in '94,
18 '94ish. '95, the brochure was put together so that we
19 would have something to show at the drupa show --

20 Q. Okay.

21 A. -- in Germany.

22 Q. Were other companies, in 1994, manufacturing
23 retractable coaters?

24 A. Absolutely, yes.

25 Q. And what other companies were manufacturing 11:32

1 retractable coaters, to the best of your knowledge, in 11
2 1994?

3 A. In 1994, there was a Dahlgren Corporation;
4 there was Rapidac, spelled R-A-P-I-D-A-C; there was
5 Oxy-Dry, O-X-Y, dash, D-R-Y. There were others, but 11:33
6 they don't immediately come to mind. Epic, sorry, Epic.
7 Epic International. There's at least four there.

8 Q. Okay. Now, you've -- you also mentioned that
9 when you got to Printing Research, I think you had said,
10 that there was a product on the drawing board. That 11:33
11 product was what?

12 A. It's what was called the EZ Coater.

13 Q. Okay.

14 A. And --

15 Q. And was that product sold -- 11:33

16 A. -- which is depicted.

17 Q. I'm sorry.

18 MR. HARRIS: Would you let the witness
19 finish testifying?

20 MR. PINKERTON: I didn't -- I'm sorry to 11:34
21 interrupt you, Mr. Bird.

22 A. And that is depicted in this brochure at the
23 bottom --

24 Q. (BY MR. PINKERTON) Okay.

25 A. -- of this page. 11:

1 Q. Let's go ahead and put a circle around that. 11:34
2 And to distinguish these, let's go ahead and, in your
3 handwriting, if we would, mark the one at the top, which
4 was the EZB --

5 A. Right. (Witness complies.)

6 Q. -- and then the one at the bottom as what?

7 A. The EZ.

8 Q. EZ, okay.

9 Now, the EZ Coater, I think you'd --
10 you'd testified that it was, in fact, sold by Printing 11:34
11 Research sometime after you started work?

12 A. Yes.

13 Q. Approximately when was that, do you recall?

14 A. I would guesstimate that the first EZ
15 installation, EZ Coater installation, was probably 11:34
16 ninety -- '92, '93. I'm guessing.

17 Q. Was that a product that was patented by
18 Printing Research?

19 A. Yes.

20 Q. And let me hand you Exhibit 14. Can you 11:35
21 identify exhibit 14, please?

22 (Documents handed to witness.)

23 A. This is the patent for that product, the EZ
24 Coater. It is Bird 14, Patent No. 5,176,077.

25 Q. And tell us what the purpose of that coater 11:35

1 was when it was sold to a customer?

2 A. The drawback with --

3 Q. No. Just tell me what it was -- what it was
4 designed to do.

5 A. It was designed to apply coating at the end of
6 a press to a sheet of paper over the top of wet ink.

7 Q. Okay.

8 A. To somewhat eliminate the use of spray powder
9 and give you a somewhat dry sheet at end of a press.

10 Q. Do you know approximately how many of those EZ
11 Coaters were sold by Printing Research during the time
12 that you were there?

13 A. Probably three or four.

14 Q. And was that a successful product?

15 A. No.

16 Q. Why not?

17 A. It had inherent problems that were never able
18 to be overcome. And those problems were related to the
19 gripper assembly and the differential in speed between
20 the takeoff cylinder, which we had turned into a plate
21 cylinder, and the impression cylinder where we were
22 taking the sheet.

23 Q. Is that EZ Coater different from a retractable
24 coater?

25 A. Yes.

1 Q. Okay. In what way?

11:36

2 A. In that it is not retractable.

3 Q. Okay.

4 A. It's in a permanent position within --

5 within -- within the confines of the press itself.

11:36

6 Q. To the best of your knowledge, what -- what
7 happened to the EZ Coaters that were sold by Printing
8 Research?

9 A. They were either returned or trashed.

10 Q. By the --

11:37

11 A. To my knowledge, to my knowledge.

12 Q. They were returned by the customers or trashed
13 by the customers?

14 A. (No verbal response.)

15 Q. As best you know?

11:37

16 A. As best I know.

17 Q. Okay. And when you're talking about disposed
18 of, what do you -- what do you mean? What's an example
19 of that?

20 A. They -- they didn't serve any purpose for
21 anybody since they -- they couldn't be made to work.
22 They -- they didn't serve any purpose, and they would
23 certainly become a hinderance in the delivery of the
24 press.

11:37

25 In fact, they -- they were in a position

11:37

TOP SECRET

1 such that they made it difficult for us to install
2 drying equipment that would be tied in with -- with the
3 coater itself.

4 Q. Okay.

5 A. I hasten to add, the concept was a very good
6 one.

7 Q. Okay. Mr. Bird, that kind of completes the
8 background that I wanted to go through. I want to, at
9 this point in time, get into the patent that's involved
10 in this lawsuit.

11 A. Okay.

12 Q. Are you aware that there is a lawsuit pending
13 between Printing Research and Williamson Printing
14 Company?

15 A. I am.

16 Q. And are you aware that that relates to a
17 patent that was obtained by Williamson Printing, U.S.
18 Patent No. 5,630,363?

19 A. Correct. Yes, sir.

20 Q. Let me hand you Bird Exhibit 6.

21 (Documents handed to witness.)

22 Is -- is that that 363 Patent?

23 A. Yes.

24 Q. Okay. Have you previously read that patent?

25 A. I've scanned the patent, yes.

1 Q. Okay. Are you aware that Williamson Printing
2 has filed what's known as a Reissue Application in the
3 United States Patent Office to reissue the 363 Patent?

11:39

4 A. Yes, I am.

5 Q. Okay. And in connection with that reissue,
6 were you asked to prepare and execute a Declaration?

11:39

7 A. Yes.

8 Q. Containing various facts?

9 A. Yes.

10 Q. Okay. Let me hand you Bird Exhibit 2, and
11 that's Production Numbers W931 through 943.

11:39

12 (Documents handed to witness.)

13 Take a -- take a look at that, please,
14 sir, and identify it for me.

15 A. (Witness reviews documents.) It is the
16 Declaration that I made to -- to yourself back in May of
17 this year -- of last year.

11:40

18 Q. Okay. You say to me, to me personally or are
19 you -- it's a Declaration that -- I certainly had
20 discussions with you about that; is that correct?

11:40

21 MR. HARRIS: Objected to --

22 A. Correct.

23 MR. HARRIS: -- as leading.

24 Q. (BY MR. PINKERTON) I did discuss that
25 Declaration with you, did I not?

11:40

1 A. Yes, you did.

2 Q. Okay. Thank you.

3 Would you look at the last page and see
4 if it's signed?

5 A. Yes.

6 Q. Is that your signature?

7 A. That is my signature.

8 Q. And what's the date, please?

9 A. 12/11/99.

10 Q. All right. If I could grab that from you.

11 (Documents handed to counsel.)

12 Subsequently, were you asked to complete
13 another Declaration, a Supplemental Declaration?

14 A. Yes, I was.

15 Q. Okay. And let me hand you what's been marked
16 as Bird Exhibit 3 -- and excuse me, just for the record,
17 Production Numbers W880 through 930.

18 (Documents handed to witness.)

19 Can you identify Bird Exhibit 3?

20 A. That's the -- that subsequent Declaration, and
21 it includes all my Day-Timer notes through -- '94
22 through '95 --

23 Q. Okay.

24 A. -- the period in question.

25 Q. All right. And for the record, I've marked

1 separately, as Bird Exhibit 4, the Day-Timers that were 11:41
2 attached to Bird 3.

3 (Documents handed to witness.)

4 And if you'll take a look at Bird 4,
5 identify that for us, please? 11:42

6 A. They are those same Day-Timer notes.

7 Q. Okay.

8 A. Through that period.

9 Q. Okay. Now, the -- the Day-Timer notes, were
10 these Day-Timers for the period of 1994 and 1995? 11:42

11 A. Correct.

12 Q. Were these -- is a Day-Timer something that
13 you kept when you were employed by Printing Research?

14 A. It's something that I keep today.

15 Q. You still keep it today? 11:42

16 A. Yes.

17 Q. Same type of Day-Timer?

18 A. Yes.

19 Q. In connection with your work at Printing
20 Research, did you make entries of appointments in your 11:42
21 Day-Timer?

22 A. Yes.

23 Q. And so if we take a look at Exhibit A, those
24 Day-Timer entries, were they prepared by you when you
25 were employed by Printing Research? 11:42

1 A. Yes, they were. 11:

2 Q. Were they done by you as part of your job at
3 Printing Research in connection with your performance of
4 your job?

5 A. I considered them to be part of my -- the 11:43
6 performance of my job. They -- they gave me a record of
7 where and what I was doing, and it made it possible for
8 me not to have problems with appointments, etcetera,
9 yes.

10 Q. Okay. Were they prepared by you in the usual 11:43
11 course of business when you were an employee of Printing
12 Research?

13 A. Yes.

14 Q. And were they prepared at or about the time of
15 the various events reflected there? 11:43

16 A. Yes.

17 Q. And are all those entries entries that were
18 made by you?

19 A. Yes.

20 Q. Previously, I understand that you had been 11:43
21 requested to supply all of your Day-Timers for 1994 and
22 1995; is that correct?

23 A. Correct.

24 Q. And you communicated that request to me before
25 your deposition; is that correct? 11:

1 A. Correct.

11:43

2 Q. Okay. I'm going to hand you this file.

3 (Documents handed to witness.)

4 Take a look at that please.

5 A. In detail?

11:44

6 Q. No, just take a look at it.

7 A. At a cursory glance, that is those.

8 Q. And "that is those," those are the Day-Timers
9 of yours from 1994 and 1995?

10 A. Yes.

11:44

11 Q. Okay. And I'll take those back.

12 (Documents handed to counsel.)

13 MR. PINKERTON: And for the record,
14 Counsel, he had previously supplied those to us, and
15 we've copied them for you at your request. So we will
16 produce those to you now.

11:44

17 MR. HARRIS: Thank you.

18 (Documents handed to counsel.)

19 It's my understanding that the testimony
20 is that that's all of them, every entry and every
21 page --

11:44

22 THE WITNESS: Yes.

23 MR. HARRIS: -- for the two years?

24 THE WITNESS: Yes.

25 MR. PINKERTON: 1994 and 1995, yes, sir.

11:45

1 MR. HARRIS: Yes. 11:

2 MR. PINKERTON: Right.

3 Q. (BY MR. PINKERTON) Let's go back and focus
4 now on the 363 Patent, which is Exhibit Bird 6, okay?

5 (Documents handed to witness.) 11:45

6 A. Okay.

7 Q. Okay. Are you aware from your review of that
8 patent that it describes and claims a process as well as
9 a press for performing the process in which flexographic
10 printing or coating is performed prior to offset 11:45
11 lithographic printing in a continuous in-line process?

12 A. Yes.

13 Q. Okay.

14 MR. HARRIS: Objected to as leading.

15 MR. PINKERTON: Well, that's --

16 Q. (BY MR. PINKERTON) Is that your
17 understanding, Mr. Bird?

18 A. Yes, it is.

19 Q. Okay. I'm going to refer to that process
20 throughout the deposition by a shorthand reference so 11:46
21 that we don't have to repeat all of that every time we
22 refer to the process described and claimed in the
23 patent, okay?

24 A. (Nodding head affirmatively.)

25 Q. And I'm going to refer to that process as the 11:46

1 flexographic/lithographic in-line process, okay? Is
2 that agreeable with you?

11:46

3 A. Sure.

4 Q. Is that an appropriate characterization in
5 your opinion?

11:46

6 A. I believe so, yes.

7 Q. And I will also use a shorthand reference and
8 refer to it as the flexo/litho process, okay?

9 A. (Nodding head affirmatively.)

10 Q. Is that an appropriate --

11:46

11 A. Yes.

12 Q. -- reference as well?

13 A. It is appropriate.

14 Q. Once again, with the understanding that we're
15 talking about here this process, flexographic printing
16 performed -- printing or coating performed prior to
17 offset lithographic printing in a continuous in-line
18 process, okay?

11:46

19 A. Okay.

20 Q. We might also use the term as describing the
21 process of using flexography upstream of lithography.
22 Is that also appropriate in your opinion?

11:46

23 A. Yes.

24 Q. Okay. When did you first learn about the
25 flexographic/lithographic in-line process as in the

11:47

1 patent, Exhibit 6?

2 A. The process?

3 Q. Yes, the process.

4 A. The process was first described to me after a
5 visit of -- that occurred somewhere in July of ninety --
6 I'd have to look at my notes -- it's July '94, wherein
7 Steve Baker, who was at the time one of our sales
8 people, had gone to Atlanta to demonstrate both UV, and
9 had gone to demonstrate a high-velocity hot air drying
10 system and a Plate/Blanket Coater to both Jesse
11 Williamson and Bill Davis.

12 When -- on Steve's return from Atlanta,
13 Steve was somewhat excited to tell us that Williamson
14 Printing had a patent pending, although that wasn't
15 always clear to me whether it was pending or it was
16 issued.

17 But certainly he talked of a process
18 wherein WIMS, Williamson Integrated Metallic Systems,
19 had been -- certainly had a patent applied for as a
20 process patent, and that Williamson Printing was looking
21 at an improvement on that method of application with
22 metallics, and that they had felt that the -- and this
23 was over a dinner meeting in the evening as sometimes
24 happens in -- in situations like this -- and that they
25 were looking for someone to work with them to produce

1 a -- a coater that would apply flexo, in particular,
2 since they felt that flexo would be a better way of
3 applying and would give them a more brilliant finish.

11:49

4 And they had previously seen some trials
5 wherein flexo had been applied with metallics that they
6 felt that this, if we were interested -- if they could
7 find someone interested enough and since we made
8 coaters, that we might be someone that could work with
9 and/or sell them a piece of equipment to achieve the
10 goal of applying metallics in-line as part of their
11 process and their process patent as part of this
12 improvement that they were looking for.

11:49

11:50

13 Q. What was said, if anything, about where they
14 were going to apply the flexo?

15 MR. HARRIS: Objected to as leading.

11:50

16 MR. PINKERTON: That's not leading at
17 all.

18 MR. HARRIS: Well, then let the --
19 just -- you get to ask the questions. Remember the
20 Rules?

21 MR. PINKERTON: I just asked him -- I
22 just asked him --

23 MR. HARRIS: You get to ask him --

24 MR. PINKERTON: -- "What, if anything,
25 was -- what, if anything, was said about -- "

11:50

1 MR. HARRIS: -- you get to ask the 11:-
2 questions, and I can't stop the witness from answering.

3 Q. (BY MR. PINKERTON) You said they were going
4 to apply were to flexo, was there any discussion at all
5 about where the flexo was going to be applied in the 11:50
6 process?

7 A. In fact, yes, the -- in the description of the
8 process, of course. And if one has to -- is able to
9 understand the process, one has to understand that
10 the -- as part of the process that it has to be applied 11:50
11 upstream. If you --

12 Q. Was that -- was that discussed -- told to you
13 by Baker?

14 A. Yes.

15 Q. Okay.

16 A. Yes, yes.

17 Q. And what did he tell you, if anything, about
18 how Davis and Williamson wanted to do that?

19 A. Oh, of course. They were looking for a
20 retractable type coater. They would look for an 11:51
21 application of that -- of that metallic with a -- with a
22 flexo plate.

23 Again, they had seen examples of litho
24 plates -- flexo plates in Germany. They had seen what
25 it was possible to do with flexo. There's -- there's 11:51

1 been some great, great strides forwards in the flexo 11:51
2 industry over the last 10, 15 years. And it became very
3 clear that resolution of dots, etcetera, which were
4 incumbent on -- on -- in use in this process, would
5 be -- would be very valid and very useful for the -- for 11:52
6 the process.

7 Q. Did Baker say anything more about the
8 retractable mechanism, anything else about -- that they
9 wanted included in that retractable mechanism?

10 A. When you say, "included in," nothing -- not 11:52
11 anything that comes to mind immediately, but we had
12 fairly protracted conversation that certainly got me
13 particularly excited because of the fact that I knew
14 that we did have a flexo -- at that time, we now did
15 have a flexo coater in our plant. 11:52

16 Q. Okay.

17 A. And this now looked like a wonderful
18 opportunity, knowing that we were, in fact, very close
19 to a -- to a deal with Williamson Printing. And I
20 thought that this would enhance our abilities to supply, 11:52
21 as has always been our goal, my goal, to produce the
22 package.

23 Q. Was -- are you through? I'm sorry. Are you
24 through?

25 A. Well, I was, but it's okay. 11:53

1 MR. PINKERTON: Do you want to go off the
2 record?

3 THE WITNESS: Yeah.

4 THE VIDEOGRAPHER: Time is 11:53 a.m.
5 We're off the record.

6 (Off-the-record discussion.)

7 MR. PINKERTON: For the record, Mr. Bird,
8 are you being distracted by someone in the room?

9 THE WITNESS: Yes.

10 MR. PINKERTON: What's happening? I
11 don't know what's happening. I'm looking at you.

12 THE WITNESS: Mr. DeMoore, when I look
13 over his way, is sitting there and chuckling in my face.

14 MR. DEMOORE: I'm smiling.

15 MR. PINKERTON: Okay. Let me state for
16 the record that --

17 THE VIDEOGRAPHER: Let me go back on,
18 please.

19 MR. PINKERTON: Okay.

20 MR. JESSE WILLIAMSON: John, I don't
21 think that other one got on the record, either, that
22 first one.

23 THE REPORTER: I was writing.

24 MR. PINKERTON: Well, the court reporter,
25 she got the --

1 THE VIDEOGRAPHER: The time is 11:54 a.m.
2 We're on the record.

11:54

3 MR. PINKERTON: Let me just state for the
4 record that we would object to any distractions by
5 anybody in the room, and hopefully the witness can be
6 allowed to testify without being distracted by any
7 facial mannerisms or other actions.

11:54

8 Can we have that agreement?

9 MR. HARRIS: Well, I -- I can't make an
10 agreement for what people will do for other people, but
11 I tell you, I will abide by that.

11:54

12 Every once in a while, I laugh at you,
13 Mr. Pinkerton, but I think you and I do that to each
14 other. And I think you know you're talking at someone
15 else other than me, so I can't really control that
16 situation, and I don't know that anything wrong is
17 happening. I am sorry if --

11:54

18 THE WITNESS: I accept that apology.

19 MR. HARRIS: -- Mr. Bird is -- I am doing
20 it?

11:55

21 THE WITNESS: I said, "I accept that
22 apology."

23 MR. HARRIS: Oh, okay. I am not doing
24 it.

25 THE WITNESS: I know you're not.

1 MR. DEMOORE: I'm not chuckling. 11

2 MR. PINKERTON: Well, there's something
3 that is distracting the witness, and if it's distracting
4 to the witness, I think we just need to control it.

5 So I would make that request, and let's 11:55
6 go ahead and go back on the record, okay?

7 THE WITNESS: Thank you.

8 MR. PINKERTON: Okay.

9 Q. (BY MR. PINKERTON) Did -- did Baker talk to
10 you at all about -- you say he talked to you about a 11:55
11 retractable mechanism, a rack-back?

12 A. Yes, he did.

13 Q. Any discussion at all about the type of roller
14 involved in the rack-back?

15 A. Of course, yes, that it would be an anilox 11:55
16 roll because we talked about the flexo process, so of
17 course that would -- that would include an anilox roll.

18 Q. Okay. Now, you --

19 MR. HARRIS: I didn't understand. I'm
20 sorry.

21 THE WITNESS: It would include -- in the
22 flexo process, it is required that you have an anilox
23 roll --

24 MR. HARRIS: Oh, okay.

25 THE WITNESS: -- as a -- as a means of 11:55

1 providing the ink to the plate.

11:56

2 Q. (BY MR. PINKERTON) And what did Baker tell
3 you about Davis and Williamson's specification in that
4 regard?

5 A. They talked about the -- the need for various
6 types and requirements on those anilox rolls based on
7 the amount and -- of color that would be applied -- when
8 I say, "color," I'm referring to metallics -- the amount
9 of color that would be applied and -- and the amount of
10 resolution that would be required.

11:56

11 There's a -- there's a relationship
12 between dot screens that are carried on a flexo plate
13 and the anilox cell counts on a flexo plate. And it's
14 very important that those -- those cell counts match --
15 the ratios are correct. Otherwise, you can get clogging
16 of your anilox. You can get -- you can get -- you can
17 create problems for yourself.

11:56

18 So those were situations where Bill and
19 Jesse had become aware, I don't know over what period,
20 but certainly had become aware, of those sorts of issues
21 when you start to pigment flexo applicators. And -- and
22 they wanted to make sure that we had at least some
23 understanding of what their requirements were going to
24 be.

11:56

25 Q. Okay. Now, the first time that you had

11:57

11:57

1 learned of -- of the WIMS, you said a pending patent,
2 was that in your discussion with Baker?

3 A. That was in my discussion with Baker.

4 Q. Okay. Let me hand you what we have marked as
5 Bird Exhibit 5.

6 (Documents handed to witness.)

7 Take a look at that please, and can you
8 identify that patent, please?

9 A. Yes. It's Bird 5. It is Patent No. 5,370,976
10 issued December 6, '94. So it was, in fact, pending.

11 Q. Okay. You say, "It was, in fact, pending," so
12 that patent was pending?

13 A. When the discussion between Steve and myself
14 took place.

15 Q. Do you understand that that patent relates to
16 that WIMS process that you described --

17 A. Yes, I do.

18 Q. -- the Williamson Integrated Metallic System?

19 A. Yes, I do.

20 Q. Okay. Thank you.

21 (Documents handed to counsel.)

22 When you had this conversation in July of
23 '94 with Mr. Baker --

24 A. Yes.

25 Q. -- at that time, had you had any contacts with

1 Williamson Printing?

11:58

2 A. Yes.

3 Q. Okay.

4 A. Oh, yes.

5 Q. When did you first start having contacts with
6 Williamson Printing when you were employed by
7 Printing -- Printing Research?

11:58

8 A. Well, it was soon after a lawsuit settlement
9 that had occurred between Printing Research and
10 Williamson that I don't know the details of, but
11 certainly, I was made aware that it was now possible for
12 us to call on Williamson Printing.

11:59

13 Up to that point, I'd always been told
14 that we could not make -- make contact with that
15 company. I was never quite sure why, but it became
16 apparent when the lawsuit was settled.

11:59

17 I -- so I'd have to say that it was
18 certainly a short time after that settlement that I went
19 in to meet with Jesse and Bill Davis. And quite
20 frankly, I was thrilled with the reception.

11:59

21 Q. And what did you meet with them about at that
22 point in time?

23 A. Excuse me?

24 Q. What did you meet with them about then?

25 A. We were talking about the product and the

12:00

1 growth of products, the development of products that -- 12
2 that we at Printing Research had now grown into from the
3 corporation that I believe Jesse and Bill were more
4 acquainted with through their previous dealings.

5 We wanted to make them aware that we had 12:00
6 drying systems. After all, this was the -- and coating
7 systems -- this was the biggest, not at that time, but
8 certainly the biggest potential printer in Dallas --

9 Q. Uh-huh.

10 A. -- and was, therefore, from a sales marketing 12:00
11 standpoint, a very important customer for me to make --
12 I felt for me to make contact with.

13 Q. So was this when you first met Bill Davis and
14 Jesse Williamson?

15 A. Yes, it was. 12:00

16 Q. And, again, approximately what time frame are
17 we talking about there?

18 A. I'd say probably late '93ish. '93ish,
19 somewhere in there. So during that period, I had had
20 several conversations with Bill that related to the fact 12:01
21 that Jesse was -- was concerned because he had an aging
22 range of machinery and that he was looking to purchase
23 new machines.

24 And the sort of numbers of machines that
25 were being spoken about was very exciting to someone in 12:01

1 a sales marketing position.

12:01

2 Q. Did you later learn that Williamson was
3 looking to and actively seeking to replace their
4 existing presses?

5 A. Yes, I was. And that was, again, part -- the
6 reason that we took Jesse and Bill -- I couldn't attend,
7 I was -- I had to go to some other meeting. I did want
8 to attend that meeting in July.

12:01

9 But in fact, Steve and -- the purpose of
10 taking -- having Steve and Bill and Jesse going down to
11 Atlanta was specifically to look at the machinery that
12 we were trying to sell them.

12:02

13 Q. And what machinery was that that you were
14 trying to sell them?

15 A. We were attempting to sell the high-velocity
16 hot air drying systems. We were trying to sell them the
17 infrared drying systems along with UV drying systems.

12:02

18 Q. Okay. Now --

19 A. UV drying and curing systems.

20 Q. The drying systems, where would they actually
21 be placed, and how would they be used on these new
22 presses that they were talking about buying?

12:02

23 A. Well, it was interesting because the
24 high-velocity hot air drying systems were --- I know it
25 was exciting to -- to Williamson to install those

12:02

1 between stations on the printing press, not so exciting 12
2 for the UV to go between printing stations at that time,
3 and the infrared speaks for itself. That was to go at
4 the end of the machine.

5 Q. Okay. So is that what's referred to as 12:03
6 "interstation drying equipment"?

7 A. Yes, it is.

8 Q. Is that what you were -- "you," being
9 Printing -- you as -- as and for Printing Research, you
10 and Steve Baker were trying to sell to Williamson? 12:03

11 A. Yes. And that's why my -- at the time, it
12 hadn't occurred to me, but after the meeting of July,
13 that's when I became aware of and started to understand
14 Williamson's excitement at the high-velocity hot air
15 drying systems. It did -- it wasn't so obvious up to 12:03
16 that point.

17 MR. PINKERTON: Okay. This is a good
18 time to take a break, if we can break for lunch,
19 until -- when do you want to break to, Bill, 1:15?

20 MR. HARRIS: Yeah. An hour and a 12:03
21 quarter, whatever that is.

22 MR. PINKERTON: Okay. It's five after.
23 Hour -- 1:20?

24 MR. HARRIS: You might give me some tips
25 out there in the hall. I'll talk to you about -- 12:

1 MR. PINKERTON: Okay.

2 MR. HARRIS: -- where to go eat.

3 THE VIDEOGRAPHER: Time is 12:04. We're
4 off the record.

5 (Recess from 12:04 p.m. to 1:50 p.m.)

13:50

6 THE VIDEOGRAPHER: The time is 1:50 p.m..
7 We're on the record.

8 MR. PINKERTON: Yeah, you've got yours
9 on. I'll put my mike on.

T02F503645T60

0 Q. (BY MR. PINKERTON) Mr. Bird, I want to go
1 back and finish up with one thing that we got off of,
2 and this was, you were describing your duties and
3 responsibilities when you were with PRI --

13:51

4 A. Correct.

5 Q. -- Printing Research?

6 1992, you said you became Product
7 Manager. Generally, what were your duties in that time
8 frame until '95, '96 when you became Director of Sales?

9 A. Sales marketing with the technical
10 responsibility to help develop our own drying systems.

13:51

11 Q. Okay.

12 A. Drying and coating systems.

13 Q. And then as Director of Sales, how did your
14 responsibilities change, if they did at all?

15 A. Not really. It was a responsibility that

13:51

1 wasn't ever an official responsibility, but it was a
2 responsibility that I undertook.

3 Q. Okay.

4 MR. PINKERTON: Excuse me.

5 Q. (BY MR. PINKERTON) Let's go back to -- we
6 were talking about summer 1994, okay? When,
7 approximately, did you learn that Williamson had made
8 the decision to buy Heidelberg presses?

9 A. That would have been around, I guess would
10 have to be, late '93, somewhere in '93, early '94
11 period.

12 Q. Okay. Then you had -- you've already told us
13 about the meeting you had with Steve Baker, July of
14 1994, okay?

15 A. Correct.

16 Q. I want to focus now on the time frame from
17 August 1994 until the end of that year, okay?

18 A. Okay.

19 Q. Did you continue to have contacts with the
20 people at Williamson during that time frame?

21 A. Yes.

22 Q. Did you have meetings with them?

23 A. Yes, I did.

24 Q. Okay. Would you tell us what -- what the
25 purpose of those meetings was in that time frame?

1 A. Ostensibly, to establish our -- the
2 possibility of us selling Williamson drying systems, in
3 particular. And also, once the knowledge of the
4 situation had come up in July of '94 relative to the --
5 to the WIMS process, to also look at and see where we
6 might be able to help with the coating aspects.

13:53

7 Q. Okay. I think you said that the "WIMS
8 prospect" [sic]. Are you talking about the WIMS or the
9 improved WIMS, or what are you talking about there?

13:53

10 A. I'm talking about improved WIMS process.

13:54

11 Q. Okay. In that time frame, did you have a
12 number of discussions, meetings with the people at
13 Williamson?

14 A. Yes.

15 Q. Is that the subject of your Supplemental
16 Declaration, which is Bird Exhibit 3?

13:54

17 A. Yes.

18 Q. Okay.

19 A. Yes.

20 Q. That's also the subject of Bird Exhibit 4,
21 which is the separate attachment, is it not, of your
22 Day-Timer?

13:54

23 A. Right.

24 Q. Which depicts various meetings that you had
25 with Williamson?

13:54

1 A. Yes.

13:

2 Q. And of course, Bird 4 goes, I think, on into
3 '95; is that right?

4 A. Yes, it does.

5 Q. You might just confirm that, if you would?

13:54

6 A. Yeah. (Witness reviews documents.) Yes,
7 these are the various -- various meetings.

8 Q. Okay. Tell us, if you would, about the
9 substance of these various meetings. They're detailed
10 here, of course, in the Day-Timer, Exhibit 4.

13:55

11 What was discussed in these various
12 meetings?

13 A. We discussed -- among other things, of course,
14 we did discuss the drying issues, where and how we might
15 be able to help Williamson Printing in their endeavors
16 with their new presses.

13:55

17 Beyond that, we also discussed how the --
18 we might be able to supply a rack-back type coater,
19 anilox type coater, that we might be able to supply and
20 work with them to -- for them to let us know exactly how
21 and what sort of brilliance of -- of resolution,
22 brilliance of color, etcetera, that they might be
23 looking for.

13:55

24 They were essentially telling us what
25 they needed to get to -- to a product that would make

13:5

1 sense for us to be able to supply.

13:56

2 Q. Did they tell you what they were going to use
3 in regard to the flexo/litho process?

4 A. Yes.

5 Q. What did they -- what, for example, would they
6 have told you?

13:56

7 A. They would have told us that they wanted to
8 use a flexo applicator, sealed doctor blade chamber type
9 system as they'd seen similar -- similar applications
10 and that it should be able to be movable on and off the
11 press.

13:56

12 All of those things, as we've stated
13 before, seemed fairly simple only because it was a
14 well-known technology at the time.

15 MR. HARRIS: I'm going to need part of
16 that read back because there were two or three words
17 that I couldn't hear at all.

13:56

18 MR. PINKERTON: Okay. Sure.

19 MR. HARRIS: The last half, I think.

20 THE WITNESS: Oh, okay.

21 MR. HARRIS: Now, wait a minute.

22 MR. PINKERTON: She's going to read it
23 back.

24 MR. HARRIS: She's going to read back to
25 save you the trouble.

13:57

1 THE REPORTER: The last half, sir?

2 MR. HARRIS: Just start, and I can tell
3 you,, I think.

4 THE REPORTER: Okay. Let me get down
5 here.

6 (Record read by reporter.)

7 Was that what you needed?

8 MR. HARRIS: I'm not sure.

9 THE REPORTER: Okay. That was the last
10 half.

11 MR. HARRIS: How -- the question, I think
12 was, "What did they have or want," and he -- the word
13 "anilox" appears in due course. And then a little down
14 from that is where I'm trying to get.

15 THE REPORTER: Okay.

16 MR. HARRIS: That's where I didn't hear
17 it. "Anilox" and probably "chambered".

18 THE WITNESS: Yes, "chambered doctor
19 blade."

20 MR. HARRIS: Uh-huh.

21 (Record read by reporter.)

22 THE REPORTER: Is that what it is?

23 MR. HARRIS: Let me get over here in
24 front of you where I can hear you.

25 THE REPORTER: Okay. Do you want me to

13:58

1 just read back the whole answer?

2 MR. HARRIS: No. Try that.

3 THE REPORTER: Okay.

4 (Record read by reporter.)

5 THE REPORTER: Was that it?

6 MR. HARRIS: Uh-huh.

7 THE REPORTER: Okay.

8 Q. (BY MR. PINKERTON) Was there discussion --

9 MR. PINKERTON: I'm sorry, Tami.

10 THE REPORTER: That's okay.

11 Q. (BY MR. PINKERTON) Was there discussion in
12 the meetings of the various coatings or inks that they
13 were going to try to use in this --

14 A. Oh, yes.

15 Q. -- new process?

16 A. Yes.

17 Q. What did they tell you about that?

18 A. Well, they told us that they -- they had an
19 agreement with a -- with a corporation out of England
20 wherein -- Walstonhome [phonetic] -- that manufactures,
21 as speciality, metallic pigments and were a major
22 supplier around the world, in fact, and that we should
23 make contact with -- with them, in fact, to see that we
24 could get ideas of particle size, etcetera, and their
25 application and applicability to -- to the sort of

13:58

13:59

13:59

1 anilox roll and cell counts that we would be -- be 13
2 wanting to use.

3 Q. Any other type of coatings that you recall
4 that were mentioned that they were going to use --

5 A. Oh, yes. 13:59

6 Q. -- in this new process?

7 A. Yes. Whites was certainly something that I
8 know was of great interest, opaque white, where they
9 would be printing on dark color materials that would
10 normally take several passes to achieve. 13:59

11 It was certainly felt by Williamson it
12 would be a great advantage to be able to do that in one
13 pass using a flexo application.

14 Q. Any other types of coatings or inks that --

15 A. Yes --

16 Q. -- they were going to use?

17 A. -- I mean, we -- we variously discussed the --
18 sometimes -- in fact, the discussions got somewhat out
19 of hand in my opinion in that we -- we got into a whole
20 slew of product that was easily achieved with flexo that 14:00
21 was never easily achieved with litho.

22 Q. Okay. Take a look at your -- well, what about
23 scratch-and-sniff, that type of thing --

24 A. Scratch --

25 Q. -- was that mentioned?

1 A. Scratch-and-sniff was mentioned, and scratch
2 and sniff was something that very clearly came out of
3 Williamson and was something that they, in fact, used in
4 a -- in a -- in a promotion that was used for the
5 Weyerhaeuser Company and was somewhat of a surprise to
6 us when -- when -- when it was proposed to be used.

14:00

14:01

7 I do recall that garlic was -- was the --
8 the flavor that they decided to use. And it was for a
9 set of sneakers that when you scratch them you got a
10 beautiful garlic flavor coming off sneakers.

14:01

11 Q. Were these --

12 MR. HARRIS: Move to strike the answer --

13 Q. (BY MR. PINKERTON) Were these --

14 MR. HARRIS: -- on the basis that it is
15 extended far beyond the question and irrelevant.

14:01

16 Q. (BY MR. PINKERTON) Is there some term for
17 these scratch-and-sniff type coatings or --

18 A. They're microencapsulated materials supplied
19 by 3M Corporation.

20 Q. Have you ever heard of the term "encapsulated
21 essences"?

14:01

22 A. Yes.

23 Q. Is that what they are?

24 A. Yes.

25 Q. Okay. And there was discussion of various

1 types of encapsulated essences that were going to be 14:
2 used in the new flexo/litho processes?

3 A. Yes, indeed --

4 MR. HARRIS: Objected to as leading --

5 A. Yes, indeed.

6 MR. HARRIS: -- terribly.

7 MR. PINKERTON: Well, that was what his
8 testimony was.

9 Q. (BY MR. PINKERTON) Is that correct, sir?

10 A. That's correct. 14:02

11 MR. HARRIS: That may have been what his
12 testimony was, but it was -- your question was leading.

13 Q. (BY MR. PINKERTON) Now, during this same
14 period that we're talking about -- August '94 through
15 the end of the year, okay? -- what, if anything, did you 14:02
16 do within Printing Research in regard to fulfilling any
17 of Williamson's needs with respect to a retractable
18 printer coater for the -- for the flexo/litho process?

19 A. Well, it would have been clearly my duty and
20 was. In fact, what I think I accomplished was to be 14:02
21 able to get the people at Printing Research excited
22 about the prospect of supplying such a coating device
23 that could, in fact, achieve the goals that -- that
24 Williamson were looking to achieve.

25 Q. Was a retractable printer coater with an 14:

1 anilox roller for use in the flexo/litho process
2 actually developed by PRI for Williamson?

14:03

3 A. There was indeed, yes.

4 Q. And what was that device? Was it -- did it
5 have a name?

14:03

6 MR. HARRIS: Move to strike the last as
7 leading, again.

8 You sure are leading the witness.

9 Q. (BY MR. PINKERTON) You can go ahead and
10 answer.

14:03

11 A. Okay. It's -- it was what we called EZ
12 Interstation Coater and is listed on this -- on this
13 brochure here as such.

14 Q. Okay. Which brochure? What exhibit is that,
15 sir?

14:03

16 A. This is the EZ Print, slash, Coat Family of
17 coating devices.

18 Q. Okay. And if you would, identify the page --

19 A. It is the second page of those documents.

20 Q. Okay. And once again, let's put a circle and
21 a notation around that.

14:03

22 A. (Witness complies.)

23 MR. HARRIS: What's the exhibit number?

24 Remind me.

25 MR. PINKERTON: That is Exhibit 13, Bird

14:04

1 13.

2 Q. (BY MR. PINKERTON) Now, you've put the
3 designation "EZI," and that stood for what?

4 A. EZ Interstation.

5 Q. Okay. And who was it that that coater was
6 developed for?

7 A. That was developed for Williamson Printing.

8 Q. Okay. The anilox roller, is it shown on the
9 brochure?

10 A. The anilox roller is shown on the brochure but
11 not on the device, only because of our policy to be
12 fairly ambiguous so that if changes were to take place
13 at a later date, we could -- we could make those
14 changes.

15 However, in the corner, the actual anilox
16 roll device is described.

17 Q. And is that in the lower right-hand corner?

18 A. That's in the lower right-hand corner.

19 Q. Okay. If you want to just circle that, and do
20 you want to label that "anilox"?

21 A. Yes. (Witness complies.)

22 Q. Now, the EZI Interstation Printer Coater
23 retractable device, does it have basic components as
24 part of it?

25 A. Yes, it does.

1 Q. What are the basic components of it? 14:05

2 A. Basic components of an EZI Interstation
3 Coater, very similar to the EZB, is that you have a
4 retraction system, you have an anilox roll, you have a
5 sealed doctor blade chamber assembly and a pumping 14:05
6 system.

7 Q. Okay. Who did the actual mechanical, detailed
8 mechanical, design of the retraction system on the EZI
9 or EZ Interstation Printer Coater?

10 A. That would be Ron Rendleman. 14:05

11 Q. And Ron Rendleman worked for PRI at that time?

12 A. Yes, he did.

13 Q. What was his position with PRI then?

14 A. He was the supervisor of the machine shop.

15 Q. He ran the machine shop? 14:06

16 A. He ran the machine shop.

17 Q. Okay. What kind of a machine shop was it?

18 A. There was two C & C cutters, cutting
19 devices -- I'm not sure what the exact title is. As I
20 say, I'm not an engineer myself -- several aids, 14:06
21 drilling equipment.

22 Q. Okay. Was the EZI Interstation Coater
23 referred to by any particular name at PRI internally?

24 A. It became known as the "Rendleman coater."

25 Q. And why was that, sir? 14:06

1 A. Because Ron was the gentleman that designed
2 it.

14:

3 Q. Okay. And once again, what aspect of it did
4 he do the mechanical design of?

5 A. The -- the main mechanical design that was --
6 that Ron contributed to was -- was the retraction
7 system, what we referred to as the "Ferris wheel
8 motion."

14:06

9 Q. Okay. Switching now into -- well, before we
0 go to 1995, let's -- let's talk about late 1994, okay?

14:07

1 A. (Nodding head affirmatively.)

2 Q. Do you recall tests or experiments being
3 performed at PRI in regard to the flexo/litho process?

4 A. In ninety --

5 Q. Late 1994. Again, specifically, December
6 1994.

14:07

7 A. We -- we were able to print flexo, but -- yes,
8 we printed flexo.

9 Q. Okay. Were those tests experiments?

10 A. They were experiments, they were tests, they
11 were a combination.

14:07

12 Q. Okay.

13 A. This was done for -- for Williamson Printing.

14 Q. Okay. Who had requested those tests be done?

15 A. Williamson Printing.

14:08

1 Q. Anybody in particular at Williamson? 14:08

2 A. This was an amalgam of Jesse, Bill Davis --
3 Jesse and Bill Davis in particular.

4 Q. Okay. What was the purpose of those tests?

5 A. The purpose was to establish the -- whether we 14:08
6 had the right means to produce, again, a coater that
7 would -- that would satisfy their needs in terms of
8 the -- the ability to apply opaque whites, metallic
9 silver, metallic gold, the -- the plethora of products
10 that we had steadily come to realize could be -- could 14:08
11 be applied.

12 Q. What about flexographic plates, was that
13 involved at all in --

14 A. Yes --

15 Q. -- the testing?

16 A. -- very much so.

17 Q. Describe that, if you would, please.

18 A. We had -- at that time, we had -- in-house, we
19 had a flexographic plate that had been supplied for us
20 by another customer that we used in testing. And 14:09
21 Williamson provided several plates that they had
22 procured from, I believe, both Dupont and, I think at
23 the time it was, W.R. Grace, but today would be
24 Polyfibron.

25 And we were -- we were testing, again, 14:09

1 resolutions and the -- the acceptability of quality
2 standards, etcetera, that we would be able to produce
3 for Williamson.

4 Q. Who organized and directed these tests?

5 A. I did.

6 Q. Anybody at Printing Research -- I mean, excuse
7 me, at Williamson Printing? Was [sic] people involved
8 from Williamson --

9 A. Oh, yes --

10 Q. -- Printing?

11 A. -- yes. And that would -- that would be Bill
12 Davis in particular.

13 Q. Okay. So what was Bill Davis's role as far as
14 what was to be done, that type of thing?

15 A. We would sit down and work out the spec.

16 "What -- what do you want us to do for you?"

17 Q. And when you say, "what do you," are you
18 referring to Bill Davis?

19 A. I'm referring to Bill Davis.

20 Q. You would ask Bill what he wanted done?

21 A. Yes.

22 Q. Okay.

23 A. And --

24 Q. Go ahead.

25 A. -- and Jesse would be involved, but I don't

1 think in quite the same depth at that time that Bill
2 was.

14:10

3 Q. Okay. Were records maintained at Printing
4 Research with respect to those tests you've talked
5 about?

14:10

6 A. Yes.

7 Q. Let me hand you what's been marked as Bird
8 Exhibit 16. It's PRI No. 00699.

9 (Documents handed to witness.)

10 A. (Witness reviews documents.) It's Bird 16.
11 It is a Information Demonstration form that, in fact, I
12 had been responsible for producing within the company so
13 that we would always have record of tests of this nature
14 and/or demonstrations so that everybody that was
15 involved in those tests and/or demonstrations would be
16 aware of what our goals were and what it was that we had
17 to -- to achieve during the -- during those test
18 periods.

14:10

14:11

19 Q. The Demonstration Information form, is that
20 a -- a document that was used and prepared in the usual
21 course of business at Printing Research --

14:11

22 A. It be -- it --

23 Q. -- for tests and experiments?

24 A. It became so, yes.

25 Q. Okay.

14:11

1 A. And I can't swear that this would have been 14:
2 the first or the -- one of many, but it certainly was
3 something that I produced.

4 Q. Okay. And was this particular Demonstration
5 Information form, Bird Exhibit 15 [sic], was that 14:11
6 prepared in the usual and ordinary course of business at
7 Printing Research?

8 A. Yes.

9 Q. And who was it prepared by?

10 A. This was prepared by me. 14:12

11 Q. Okay. That's your -- your handwriting that
12 appears?

13 A. Yes. Yes.

14 Q. Was this prepared at or about the time of the
15 events depicted herein? 14:12

16 A. Yes.

17 Q. Okay. What -- this document, Bird Exhibit 15
18 [sic], shows testings on what specific dates?

19 A. 12/20, 12/21/94.

20 Q. And what -- what coater was used to -- or used 14:12
21 in these tests?

22 A. What we loosely called the EZB, the EZ Blanket
23 Coater --

24 Q. Okay.

25 A. -- was used to produce this. 14:12

1 Q. And that's one that we've already marked as an 14:12
2 exhibit; is that correct?

3 A. Yes, sir.

4 Q. Okay. Now, that EZB, what press was it on for
5 these tests? 14:12

6 A. It was on the Heidelberg two-color --

7 Q. And where was it?

8 A. -- press machine.

9 The Heidelberg two-color --

10 Q. No, not the -- I'm sorry. Where was the 14:13
11 coater?

12 A. The coater was placed on -- as depicted here
13 in this -- in this drawing, this computer drawing, on
14 the delivery station of the -- of the machine --

15 Q. Okay. 14:13

16 A. -- applying ink and/or coating at the last or
17 second -- in this case, second printing unit of the
18 machine.

19 Q. Okay. And so you're saying that it was as
20 depicted here on Bird Exhibit 13 where you've got marked 14:13
21 "EZB"?

22 A. Correct.

23 Q. Okay. That EZB Coater, I don't know if I
24 asked you this before, but was that a patented coater?

25 A. It was not. 14:13

1 Q. Okay.

2 A. There is much prior.

3 Q. The -- you previously mentioned an EZ Coater,
4 right?

5 A. Correct.

6 Q. And that -- we have seen that in that EZ
7 brochure?

8 A. Right.

9 Q. That one I think we previously established was
10 a patented device?

11 A. Yes. And that's this coater.

12 Q. Okay. And that's the coater shown lower
13 right-hand corner of Bird Exhibit 13 where you've marked
14 "EZ"?

15 A. Correct.

16 Q. Okay. And that one was patented.

17 Was that EZ Coater used at all in these
18 tests?

19 A. No.

20 Q. Take the Exhibit 15 [sic], if you would,
21 please -- it is -- I'm sorry, is that the wrong number?

22 A. 16.

23 Q. 16. Bird Exhibit 16 where it says, "Purposes,
24 goals, and objectives. What does the customer want to
25 achieve?"

1 Would you read what that says, please? 14:14

2 A. "Apply metallic flexo type inks, including
3 pearlescents, between printing units and overprint with
4 regular inks all in-line."

5 Q. Okay. That was -- where did -- it says, "What 14:14
6 did the customer want to achieve?" Where did you get
7 what the customer wanted to achieve?

8 A. From the customer.

9 Q. And "customer" being here?

10 A. Williamson Printing. 14:15

11 Q. Okay. And who particular at Williamson?

12 A. This would have, once again, have been Jesse
13 Williamson and Bill Davis.

14 Q. Okay. The next block there says, "Procedure."
15 Do you see that? 14:15

16 A. Yes, I do.

17 Q. Would you read that, please?

18 A. "Apply water-based slurries and inks through
19 the EZB at the blanket position primarily, and
20 eventually from the plate position to compare." 14:15

21 Q. Okay. And then there's a notation --

22 A. "See over."

23 Q. -- "see over." And which "see over" do we go
24 to here?

25 A. Well, the -- you've got the asterisks where 14:15

1 we're looking at the -- we're just basically looking at 14:
2 the comparisons on the other side, so you're -- the
3 Results and Comments, we actually moved on to say, "We
4 to print/coat white -- coat white, silver, and gold from
5 the blanket position on varnished [sic] stock colors 10 14:15
6 of each. Using Rexham plate."

7 That was the customer referred to
8 previously whose plate we were using.

9 Q. Okay.

10 A. "2. We to print/coat slurry on white stock 14:16
11 from the blanket position," etcetera. I don't know if
12 you want me to read all that.

13 Q. No, that's fine.

14 So the documents there on the back side
15 where it says, "Results and Comments," that reflects 14:16
16 what?

17 A. That reflects the results and comments --

18 Q. Okay.

19 A. -- of the tests. And you'll note that they
20 are -- they are dated. You can see what we did on 14:16
21 12/20, and you can see what we did on 12/21.

22 Q. Okay. All right.

23 (Sotto voce discussion.)

24 MR. HARRIS: Are you off the record? Are
25 you off the record?

1 MR. PINKERTON: No.

2 MR. HARRIS: You're just mumbling, John.

3 MR. PINKERTON: I'm conferring with
4 co-counsel here, trying to find an exhibit. I'm sorry.

5 Q. (BY MR. PINKERTON) Mr. Bird, let me show you 14:17
6 what we've marked as Exhibit 17, and for the record,
7 that's PRI Production Number 00673.

8 (Documents handed to witness.)

9 A. (Witness reviews documents.)

10 Q. Again, is that a demonstration form? 14:17

11 A. Yes, it is.

12 Q. Okay. And can you identify that for us,
13 please, sir, and tell us what it relates to?

14 A. It relates to a -- another test where we're
15 running a new silver, gold, and white provided by 14:17
16 Williamson. And -- and we're referring to the
17 viscosities and looking at what sort of drying speeds,
18 etcetera.

19 We're looking at what technical aspects
20 that we're likely to have to address as we proceed 14:18
21 with -- with the project with -- with Williamson
22 Printing.

23 Q. That test, who was that requested by?

24 A. Bill Davis.

25 Q. And who would have -- did he organize the 14:18

1 test?

14:

2 A. He organized the test with -- with myself,
3 in --

4 Q. Okay.

5 A. -- cooperation with myself.

14:18

6 Q. And once again, the Demonstration Information
7 form, the same information you told us about the
8 information form, which was Bird Exhibit 16, with
9 respect to it being a document that was prepared in the
10 usual and ordinary course of business at Printing
11 Research, all that same testimony holds true with
12 respect to Exhibit 17 as well?

14:18

13 A. Yes. The difference only being that this was
14 prepared by Warren Bird.

15 Q. Okay. Prepared by -- and who is Warren Bird?

14:18

16 A. Warren Bird is my son.

17 Q. Okay. Once again, it was the practice at
18 Printing Research to have someone with knowledge of the
19 information that's reflected there to prepare that form?

20 A. Yes.

14:19

21 Q. And that person, whoever it would have been,
22 your son or you, would have --

23 A. Correct.

24 Q. -- prepared that form at or about the time of
25 the events depicted thereon?

14:

1 A. Yes.

14:19

2 MR. HARRIS: You're leading when you
3 suggest he did it like that, Counsel. I --

4 MR. PINKERTON: Excuse me?

5 MR. HARRIS: -- object to the leading
6 question.

14:19

7 Go ahead.

8 Q. (BY MR. PINKERTON) Thank you very much.

9 Let's go back to Bird Exhibit 16, okay?

10 (Documents handed to witness.)

14:19

11 Once again, these are the December 20 and
12 21, 1994, tests; is that correct?

13 A. Correct.

14 Q. Okay. Did Howard DeMoore have any substantive
15 participation in these tests?

14:19

16 A. No.

17 Q. Did he in any way organize, prepare, or direct
18 the tests?

19 A. No.

20 Q. Did Ron Rendleman organize, prepare, direct,
21 or participate in the tests?

14:19

22 A. No.

23 Q. Did Mr. DeMoore make any suggestions at all to
24 Bill Davis or Williamson in regard to these tests?

25 A. No.

14:20

1 Q. Okay. Let's -- let me have that. I'll take
2 that off your hands.

3 (Documents handed to counsel.)

4 Thank you. Let's go now to 1995. Do you
5 recall February 1995, approximately, when you might have
6 had discussions with printing -- excuse me, discussions
7 with Williamson Printing about actually purchasing or
8 buying the EZ Interstation Printer Coater?

9 A. Yes.

10 MR. HARRIS: Objected to as leading.

11 Q. (BY MR. PINKERTON) Okay. Specifically, at
12 this time, do you recall the specific date when you
13 would have had these -- this particular discussion
14 concerning the business arrangement?

15 A. It would have been early February. If I may,
16 if I can refer to my Declaration.

17 Q. Would it refresh you on the date?

18 A. Yeah, I think so.

19 Q. Okay. And that's Exhibit 2?

20 A. (Witness reviews documents.) Exhibit 2, and I
21 believe that that's -- I think it was February 11.

22 Q. Uh-huh. Let's see. Exhibit 2 is -- you're
23 looking at the wrong exhibit.

24 A. I am?

25 Q. Uh-huh.

1 A. So let's take that away. 14:21

2 Q. That's it.

3 A. Why don't you refer me to the --

4 Q. Specifically, paragraph 15?

5 THE WITNESS: Well, it was five years 14:22
6 ago.

7 MR. HARRIS: Well, I'm not laughing at
8 you. I'm laughing at Pinkerton.

9 THE WITNESS: My memory isn't as good --

10 MR. PINKERTON: We want to -- we do want 14:22
11 to move this --

12 MR. HARRIS: I know.

13 MR. PINKERTON: -- we do want to move
14 this process along.

15 MR. HARRIS: I'm not even going to 14:22
16 object.

17 MR. PINKERTON: Thank you.

18 MR. HARRIS: I will continue to sometimes
19 when you're outrageous, but this is -- this is kind of
20 funny. 14:22

21 MR. PINKERTON: We're trying to save
22 time.

23 Q. (BY MR. PINKERTON) Paragraph 15 --

24 A. Yes.

25 Q. -- okay. Will that -- just take a look at 14:22

1 paragraph 15 and see if it refreshes your recollection. 14:

2 A. Yes, it does. Yes, it does.

3 Q. Just take a minute and read that.

4 A. Yeah. (Witness reviews documents.) I
5 remember it well. 14:22

6 Q. Okay. February 11, what do you recall, then,
7 about this February meeting -- or excuse me, February
8 11, 1995, meeting?

9 A. Jesse and Bill had called the meeting, and we
10 were shown samples of -- print samples that they had had 14:22
11 produced in Germany I believe by M.A.N. Rowland
12 [phonetic]. I could be wrong, but I believe it was
13 M.A.N. Rowland [phonetic].

14 And those print tests were showing --
15 depicting a Rolex watch advertisement in which the gold 14:23
16 was produced with a -- with a flexo application. And
17 also there was -- if my memory is correct, also there
18 was a Harley Davidson with a Lee jean image on those.

19 Williamson Printing, I think for obvious
20 reasons, were extremely excited because it -- it had 14:23
21 brought to the fore all of their theories that they'd
22 been expounding on, had clearly shown that they were
23 more than possible, and that we were moving down -- they
24 were moving down the right trail.

25 And it was due to those -- those samples 14:

1 that we moved forward with the -- with the whole project 14:24
2 of -- of having a coater put on order and -- and for
3 them to work with us --

4 Q. What --

5 A. -- in that regard. 14:24

6 Q. What did you understand about the process that
7 was used to have printed that -- those Rolex pieces that
8 you were talking about that they were excited about?

9 A. They were essentially produced offline, but
10 nonetheless, they were produced with printing a gold 14:24
11 and/or a silver, and then they were overprinted, taken
12 back off, back in-line, and printed over the top of.

13 Q. Okay. Is that a simulation of the flexo/litho
14 process?

15 A. It's a simulation of the WIMS process, yes. 14:25

16 Q. Is it a simulation of the flexo/litho process
17 we talked about as an improved -- improved process?

18 A. Yes, it is --

19 Q. Okay.

20 A. -- very much so. 14:25

21 MR. HARRIS: I move to strike that as
22 unduly leading. I'm sorry.

23 MR. PINKERTON: Well, it's real important
24 when we talk about Williams [sic] that we be specific
25 about what we're talking about so -- 14:25

1 Q. (BY MR. PINKERTON) Do you remember we talked 14:
2 about a Williams [sic] patent, the basic metallic
3 integrated -- Williamson Integrated Metallic System?

4 A. Correct.

5 Q. The simulation, was that of the original 14:25
6 patent, or is this the new improved process?

7 A. This was -- this was a simulation of the new
8 improved process.

9 Q. Okay. What we've called the "flexo/litho
10 process"? 14:25

11 A. The flexo/litho process.

12 Q. Okay. Anything else -- what else was
13 discussed at that meeting in regard to going forward
14 with the business arrangement?

15 A. That we -- that we might -- we should look at 14:26
16 providing a -- a coater.

17 Q. Okay.

18 A. That --

19 Q. It wasn't -- I'm sorry. Go ahead.

20 A. That we should look at providing a coater. 14:26

21 Q. Was an agreement made for Williamson Printing
22 to buy or acquire these retractable printer coaters for
23 use in the process from --

24 A. Yes.

25 Q. -- Printing Research? 14:

1 A. Yes, they were.

14:26

2 Q. Okay. And what was the agreement that was
3 reached?

4 A. The agreement that was reached was that we
5 should supply a coater, a prototype coater, if you like,
6 simply because our principles had not at that stage been
7 proven at Printing Research.

14:26

8 And much to the chagrin, I know, of
9 Williamson, we -- we were only able to look at providing
10 what we called a "short-armed system" where we would
11 install it on the coating station of -- of their
12 printing press.

14:26

13 That would, therefore, not be an in-line
14 process, but it would at least give us the opportunity
15 to prove the engineering mechanics that -- that Ron
16 Rendleman had put into place might be able to be proven
17 [sic].

14:27

18 Q. So was this prototype short-armed device
19 actually provided to Williamson?

20 A. It was in the end. Yes, it was.

14:27

21 Q. Okay. And later, pursuant to these
22 discussions, were actual EZI devices provided for
23 interstation use?

24 A. Yes, they were.

25 Q. Okay. And what was the agreement between --

14:27

1 that you reached with Williamson in regard to payment
2 for the prototype and the other units?

14:

3 A. The -- the short-armed coater, since it was
4 a -- it was, one, a prototype and, two, was very much a
5 manual -- manually operated device, would be provided
6 free of charge, since, again, we hadn't proven that we
7 could do it; and that the second machine, which would
8 then be a production machine, should be at half price;
9 and then any other subsequent machines would be at full
10 price.

14:27

14:28

11 Q. Okay. So do you recall, other than the
12 prototype, how many other actual EZI machines were
13 provided?

14 A. I believe four in total, including the
15 prototype.

14:28

16 Q. Okay. So --

17 A. I believe.

18 Q. So it would be one of the prototypes and then
19 three EZIs would have been provided?

20 A. I believe so.

14:28

21 Q. And the first interstation, or EZI, as I
22 understand your testimony, was going to be at half
23 price, the other two at full price?

24 A. Right.

25 MR. HARRIS: Objected to, Counsel.

14:2

14:28

5 Q. (BY MR. PINKERTON) And --

8 MR. PINKERTON: 'Okay.' You understood?

14:28

3 Q. (BY MR. PINKERTON) The price, what was the
4 price for the -- the units --

5 | A. They were --

6 Q. -- as best you recall?

7 | A. They were in the 60s, 60 -- 60ish -

8 | Q. Okay.

9 | A. -- in thousands of dollars.

14:29

2 | A. As far as I know.

3 | Q. Okay:

14:29

1 THE WITNESS: As far as I know. 14:

2 MR. PINKERTON: As far as he knows.

3 THE WITNESS: I'm not privy to that.

4 MR. HARRIS: Would you read back the
5 question? It was something about, "Did Williamson
6 pay" -- 14:29

7 MR. PINKERTON: Yeah. "Did Williamson
8 pay for the EZI devices that were provided by Printing
9 Research?" He said as far as he knows.

10 Q. (BY MR. PINKERTON) I gather you weren't 14:29
11 involved in terms of the accounting function?

12 A. Occasionally, and occasionally not.

13 MR. HARRIS: I kind of missed the
14 question. Was the question directed to just coaters
15 that were sold or not sold but somehow that wound up in 14:30
16 Williamson's hands and came from PRI? Is that what it's
17 about?

18 MR. PINKERTON: I don't know how --

19 MR. HARRIS: You want -- you apparently
20 want the --

21 MR. PINKERTON: -- I don't know how else
22 to say it, Bill.

23 MR. HARRIS: -- record clear.

24 MR. PINKERTON: Yeah. I don't know.

25 Q. (BY MR. PINKERTON) The first -- the 14:..

1 prototype, the agreement was that it was not going to be 14:30
2 paid for, right? It was not --

3 A. Correct.

4 Q. The second -- then there were three other
5 devices provided other than the prototype? 14:30

6 MR. HARRIS: I'll go back to let you
7 summarize this time.

8 MR. PINKERTON: Okay.

9 Q. (BY MR. PINKERTON) Now, those three devices,
10 in terms of structurally, were they -- again, they were 14:30
11 the EZI device?

12 A. Correct.

13 Q. Okay. How did they differ from the prototype
14 primarily?

15 A. They differed in that they were true 14:30
16 interstation EZ Coaters or EZI Coaters.

17 Q. Okay. You described the prototype as being a
18 short-armed device. How would that compare to the EZI?

19 A. The -- the short-armed device was because on
20 a -- on a coating tower station, which is where it 14:31
21 was -- was supplied and installed, is only half the
22 height of a -- of a -- approximately half the height of
23 a full printing station since it doesn't have the plate
24 cylinder and dampening and inking systems installed in
25 it. And it's, therefore, a very much lower profile 14:31

1 unit.

2 And that in itself lent itself to us
3 making a coater more easily because we didn't have such
4 a -- such a long sweep, and plus the fact that between
5 those units, there's -- there's more space than there is
6 between printing units. That differentiated it, made it
7 a short arm as opposed to a long arm you would need for
8 a -- for a full printing device.

9 Q. Okay. Now, the -- the three EZI devices that
10 were provided by Printing Research to Williamson, the
11 first of those was at half price as I understand you?

12 MR. HARRIS: I thought his testimony --
13 that's what bothered me.

14 MR. PINKERTON: Okay. No --

15 MR. HARRIS: I thought he was saying he
16 didn't know.

17 MR. PINKERTON: No. He said the --

18 THE WITNESS: Oh, no.

19 MR. PINKERTON: -- he said the deal
20 was --

21 MR. HARRIS: Oh, the deal, I heard what
22 the deal was.

23 MR. PINKERTON: Okay.

24 MR. HARRIS: What actually happened, I
25 believe is what you asked him.

1 MR. PINKERTON: Well, what I had asked 14:32
2 him was he had a deal to pay for those. And I asked
3 him, did Williamson actually pay for those three
4 interstation EZI devices that were supplied. And his
5 testimony was, to the best of his knowledge, okay? 14:32

6 Q. (BY MR. PINKERTON) Did you get involved in
7 regard to any efforts to determine whether or not there
8 was payment for those or not?

9 A. I only smile because things got somewhat fuzzy
10 within Printing Research as far as payments, etcetera, 14:33
11 and I -- I'm not sure. I just don't remember.

12 I have no -- no clear knowledge of
13 whether they were paid for.

14 Q. Okay.

15 A. And I'm not going to say I do when I don't. 14:33

16 Q. Let me ask you to take a look at another
17 exhibit we've marked. This is Exhibit Bird 15, and it's
18 PRI 00134.

19 (Documents handed to witness.)

20 A. (Witness reviews documents.) 14:33

21 Q. Can you identify this document, Mr. Bird?

22 A. Yes.

23 Q. Is this a document that you prepared?

24 A. Yes.

25 Q. And what's it dated, sir? 14:33

1 A. It is dated 2/11/95.

14:

2 Q. And is that the same date at this meeting that
3 you've been testifying about?

4 A. Yes.

5 Q. Okay.

14:33

6 MR. HARRIS: I -- I am not sure -- do I
7 have that document?

8 MR. PINKERTON: I hope you do.

9 MR. HARRIS: What -- what number?

10 MR. PINKERTON: I think it's the one
11 that's right there on the top, Bill.

14:33

12 MR. HARRIS: The very --

13 MR. PINKERTON: The one that's turned
14 over. No, next one down.

15 MR. HARRIS: This one?

16 MR. PINKERTON: Yes, sir.

17 MR. HARRIS: Okay. Let me see if I
18 can --

19 MR. PINKERTON: There you go.

20 MR. HARRIS: Yeah, fine.

21 MR. PINKERTON: There you go.

22 Q. (BY MR. PINKERTON) Does -- once again, is
23 this document a document that was prepared by you at
24 Printing Research?

25 A. Yes.

14:..

1 Q. In connection with your duties and
2 responsibilities there?

14:34

3 A. Yes.

4 Q. And was it prepared by you in the usual and
5 ordinary course of business?

14:34

6 A. Yes.

7 Q. And it's your -- once again, it relates to
8 this meeting of February 11, 1995; is that right?

9 A. Correct.

10 Q. And approximately when would this have been
11 prepared by you?

14:34

12 A. Within the next 24 to 48 hours of that
13 meeting.

14 Q. Okay. And what does this document reflect in
15 regard to the test in Germany that you talked about that
16 Jesse had told you about?

14:34

17 MR. HARRIS: Objected to as -- objected
18 to as leading concerning gross hearsay. Leading
19 concerning gross hearsay.

20 Q. (BY MR. PINKERTON) You may answer.

14:35

21 A. It does state at Point B that "satisfactory
22 tests have been run in Germany using a 300 anilox, where
23 we hat PRI have run a 200. Jesse indicates that he
24 would like the EZ Blanket Coater for March the 1st
25 although Bill Davis indicates April 1st would be

14:35

1 acceptable."

14:

2 Q. Okay. And your reference there to "EZ
3 Blanket," is that the -- the coater that became the EZI,
4 is that what we're talking about?

5 A. That's the coater that became the EZI, yes.

14:35

6 Q. Okay. Now, Mr. Bird, at about this same time
7 frame, early 1995, was there a time when you had a
8 meeting at printing -- excuse me, at Williamson Printing
9 where the subject of a patent application came up,
10 filing a patent application?

14:36

11 A. Yes.

12 Q. And who was at that meeting, sir?

13 A. Jesse Williamson. I believe Bill Davis.

14 Q. And where was that meeting, as best you
15 recall?

14:36

16 A. It was in one of the conference rooms at
17 Williamson Printing.

18 Q. All right, sir. Do you recall specifically
19 which conference room it was?

20 A. Might I look at my Declaration?

14:36

21 Q. You don't recall?

22 A. The exact meeting room, no.

23 Q. Okay. Would referring to your Declaration
24 refresh your recollection?

25 A. Yes, it would.

14:

1 Q. Okay.

14:36

2 A. (Witness reviews documents.) If you could
3 guide me to a page.

4 Q. Let's see.

5 A. What page is that?

14:37

6 Q. Can you find it there, sir?

7 A. (Witness reviews documents.) I have it here,
8 yes. It was in Conference Room E.

9 Q. Okay. Tell us what was discussed in that
10 meeting with Williamson and Bill Davis in regard to the
11 flexo/litho process.

14:37

12 A. Jesse told us that they -- they, Williamson
13 Printing, were applying for a continuation, an
14 extension, on the improvement on their present WIMS
15 process patent, and that was to include flexographic
16 applications.

14:37

17 Q. Was it to include the flexo/litho process that
18 we've talked about --

19 MR. HARRIS: Objected to as leading.

20 Q. (BY MR. PINKERTON) -- as you understood?

14:38

21 A. Yes. Yes, it was.

22 Q. Okay. Did you, after that discussion, have
23 occasion to discuss within PRI what you had been told by
24 Jesse Williamson in regard to filing a patent
25 application?

14:38

1 A. Yes.

2 Q. Okay. What was that discussion, sir? What do
3 you recall?

4 A. I would have discussed it with -- certainly
5 with Steve Garner, who I believe at that time, I'm not
6 sure because he held various positions within the
7 company, but he would have either -- in any case, he
8 would have been my direct boss at the time, and I would
9 have discussed with him the fact that there had been a
10 conversation with Williamson where they were going to
11 patent -- they were going to set -- file an improvement
12 patent on their -- on their WIMS process.

13 MR. HARRIS: Objected to as hypothetical.

14 Q. (BY MR. PINKERTON) Okay. In regard to filing
15 a patent application, did you understand whether it was
16 going to be related to a process?

17 A. Absolutely.

18 MR. HARRIS: Objected to as leading.

19 Q. (BY MR. PINKERTON) And, again, which process
20 was it that was going to be the subject of the
21 application?

22 A. It was going to be the flexo/litho process.

23 Q. I want to switch to some of the claims that
24 are being asserted in this lawsuit by the Plaintiffs,
25 Mr. Bird.

1 There is a claim that is made in this
2 case that Mr. Howard DeMoore, who is here in the room,
3 one of the Plaintiffs, is the sole inventor of the
4 flexographic/lithographic process as in the 363 Patent,
5 okay?

14:40

6 Based on everything that you know and all
7 of your knowledge from your work at PRI, do you know of
8 any facts or information at all that would support that
9 claim?

14:40

10 A. None.

14:40

11 Q. There is also an allegation in this case that
12 Mr. DeMoore -- if he's not a sole inventor, they've got
13 a fallback position, that is, well, he's a joint
14 inventor of the flexo/litho process.

15 Do you know of any facts documents,
16 information, based on your knowledge and experience and
17 the work there at PRI that would support the claim that
18 Mr. DeMoore is a joint inventor of the flexo/litho
19 process?

14:40

20 A. None.

14:41

21 Q. Based on your knowledge and work, was the --
22 at -- at Printing Research, was the flexo/litho process
23 jointly developed by PRI and Williamson Printing?

24 A. No.

25 Q. Was it jointly developed by Mr. Ron Rendleman

14:41

1 and anybody at WPC?

14:

2 A. No.

3 Q. Was it jointly developed by Mr. DeMoore and
4 anybody at Williamson Printing?

5 A. No.

14:41

6 Q. There's also a claim in this case that's just
7 been added that Mr. Ron Rendleman is a joint inventor of
8 the flexo/litho process.

9 Based on your work at PRI, do you know of
10 any facts, any information, any documents that would
11 support the claim that Mr. Ron Rendleman is a coinventor
12 of the flexo/litho process?

14:41

13 A. No.

14 Q. To the best of your knowledge, was there any
15 joint development agreement between Printing Research
16 and WPC for development of the flexo/litho process?

14:42

17 A. No.

18 Q. Did Printing Research and Williamson Printing
19 share expenses in development of the flexo/litho
20 process?

14:42

21 A. No.

22 Q. As far as you know, were there any notebooks
23 that were shared between Printing Research and
24 Williamson Printing in regard to development of the
25 flexo/litho process?

14:4

1 A. No. 14:42

2 Q. To the best of your knowledge, based on your
3 work at Printing Research, did Printing Research and
4 Williamson send each other technical memos, E-mails back
5 and forth and regarding the flexo/litho process? 14:43

6 A. No.

7 MR. PINKERTON: Let's take about two
8 minutes. I think we're about ready to pass the witness.

9 THE VIDEOGRAPHER: The time is 2:43 p.m.
10 We're off the record. 14:43

11 (Recess from 2:43 p.m. to 3:00 p.m.)

12 THE VIDEOGRAPHER: The time is three
13 o'clock p.m. We're on the record.

14 Q. (BY MR. PINKERTON) Mr. Bird, if the
15 flexo/litho process had been invented either solely or
16 jointly by Mr. DeMoore or Mr. Rendleman, would you have
17 known about that when you were at PRI? 15:01

18 A. Yes.

19 MR. HARRIS: Objected to as leading.

20 Q. (BY MR. PINKERTON) Did -- at any time when
21 you were employed at PRI, either as a consultant or an
22 employee, did anyone advise you that Mr. Bird [sic] or
23 Mr. Rendleman had invented the flexo/litho process? 15:01

24 A. No.

25 MR. PINKERTON: Pass the witness. 15:01

1 MR. HARRIS: Okay.

15:

2 EXAMINATION

3 BY MR. HARRIS:

4 Q. Mr. Bird, I think you know that I'm Bill
5 Harris. I'm happy to meet you and --

15:01

6 A. Happy to meet you.

7 Q. -- have the opportunity to visit some since
8 your name has shown up quite a bit on papers and various
9 other things that we've gone over in this case in
10 addition to just the Declarations you made for the
11 patent offer.

15:02

12 Just some odds and ends as we go. Let me
13 show you Bird 16. I'll just pass it over there.

14 (Documents handed to witness.)

15 A. Thank you.

15:02

16 Q. And you had testified on Bird 16 some of the
17 details about its creation?

18 A. Yes.

19 Q. What -- what's Baker's signature doing down
20 there, or is that your signature?

15:02

21 A. No, that's not Baker's signature. You're --

22 Q. Is that your writing?

23 A. It's my writing. It's not --

24 Q. Uh-huh.

25 A. -- not anybody's signature. We always wanted

15:0

1 to note who the salesperson for the account would be.

15:03

2 Q. That's not signed by anybody, is it?

3 A. No. No, sir.

4 Q. It's not signed by you, is it?

5 A. No. It wasn't felt necessary.

15:03

6 Q. Did Baker get any inputs on that at all?

7 A. No.

8 Q. If I pass you No. 12 [sic], it's another
9 similar report, isn't it?

10 (Documents handed to witness.)

15:03

11 A. It is, indeed.

12 Q. And it also has Baker's name on it?

13 A. It does.

14 Q. Same situation?

15 A. Yes.

15:03

16 Q. He had nothing to do with it?

17 A. Right.

18 Q. Now, in both of these situations, where the
19 tests are performed, I gather more or less in accordance
20 with so-called Demonstration Information reports --

15:03

21 A. Yes.

22 Q. -- they have the statement, "To be completed
23 by sales rep when arranging for demo" --

24 A. Yes.

25 Q. -- did you see that?

15:04

1 A. Yes, I did. 15:
2 Q. Is it just not done that way?
3 A. It was not -- that was not done that way.
4 Q. Uh-huh.
5 A. Once again, as you recall, I wrote that one, 15:04
6 and my son wrote the second one. My son worked for me
7 at the time.
8 Q. Were you present on the second one?
9 A. Yes.
10 Q. Are you sure? Do you mean the second one, 15:04
11 which is the second one, No. 12 [sic]?
12 A. Number 12 [sic]. Positive.
13 Q. You were present?
14 A. Positive.
15 Q. And in both instances, we're not talking about 15:04
16 a single-pass in-line operation, are we?
17 A. Correct.
18 Q. In both instances, we're merely talking about.
19 a coater that's on the end unit and is a flexo working
20 in a flexo mode. And after that's done, well, then 15:05
21 maybe something else is done with the first print.
22 It may be overprinted; is that correct?
23 A. It may be.
24 Q. And it may not be?
25 A. And it may not be. 15:

1 Q. Right. And what was done in the Rexham test? 15:05

2 A. In the Rexham test, similarly, we ran metallic
3 ink, and we ran pearlescent.

4 Q. And it was done in the same way, really,
5 wasn't it? 15:05

6 MR. PINKERTON: Objection in regard to
7 "same way." Vague.

8 Q. (BY MR. HARRIS) And the same way as these two
9 that we've been talking about --

10 MR. PINKERTON: Vague.

11 Q. (BY MR. HARRIS) -- 12 [sic] and 13 [sic]? 15:05

12 MR. PINKERTON: Objection to the
13 question. Object to form. Vague and misleading.

14 A. The -- you'd have --

15 MR. HARRIS: I guess that's the form of
16 the question. 15:06

17 Q. (BY MR. HARRIS) Anyway, do you understand, do
18 you think, what I'm asking you?

19 A. No.

20 Q. Okay.

21 A. It needs to be defined what you mean by
22 "same -- same way."

23 Q. About what?

24 A. It needs to be defined as to what you mean by
25 "same way." 15:06

1 Q. In the same way --

2 A. Because there were different goals.

3 Q. -- well, I believe I described the way. I --
4 two-pass type of an operation?

5 A. That wasn't the goal. 15:06

6 Q. What?

7 A. In that case, it wasn't the same goal and was
8 not produced in the same manner, no.

9 Q. Well, did the customer, Rexham, not make a
10 successive run on the flexo print? 15:06

11 A. Yes, they did.

12 Q. And so why was it not done in the same manner?

13 A. Because you -- you qualified the first
14 statement by saying that it was then overprinted, may
15 have been overprinted. In the case of Rexham, that is 15:07
16 not true. That wasn't the purpose of what they were
17 doing. Theirs -- theirs was a different purpose and
18 process.

19 Q. But it was overprinted by them, was it not --

20 A. No. 15:07

21 Q. -- Rexham?

22 How do you know, sir?

23 A. Because I was very much privy to the process
24 and know the process.

25 Q. Yes. Do you know the name, sir, of the person 15:10

1 who was really in contact from Rexham?

15:07

2 A. Yes. I know him intimately.

3 Q. Yeah. And what is his name, sir?

4 A. John Lapomarde.

5 Q. John Lapomarde is now retired, is he not?

15:07

6 A. He's retired.

7 Q. And John -- if John Lapomarde told you that
8 they did overprint, would you be surprised?

9 A. Yes, I would.

10 Q. Would you disbelieve John Lapomarde if he said
11 that?

15:07

12 A. I would not disbelieve John Lapomarde, no.

13 Q. Okay. So that's the difference between us as
14 to whether they were done the same, right?

15 MR. PINKERTON: Objection to the question
16 as being --

15:08

17 Q. (BY MR. HARRIS) The same as was laid out in
18 16 and 17?

19 MR. PINKERTON: Wait a minute.

20 Object to the form. Vague and
21 misleading. He's got testimony about different -- he's
22 got other testimony, different process.

15:08

23 A. There were different objectives in the two
24 tests.

25 Q. (BY MR. HARRIS) I really don't care, sir,

15:08

1 about the objectives. I'm asking you, sir, whether the 15
2 runs would be the same --

3 A. They wouldn't.

4 Q. -- the overall process would be the same if
5 after it had been through the flexo step, it was run 15:08
6 with lithographic steps.

7 A. To my knowledge, that wasn't done.

8 Q. Yes, I know it wasn't. But I'm asking you to
9 assume that Mr. Lapomarde knows what he's talking about.

10 MR. PINKERTON: I'm going to object to 15:08
11 asking this witness to speculate about something that
12 was done about which he has no knowledge.

13 A. I have no knowledge.

14 MR. HARRIS: As far as speculation's
15 concerned, I believe that's one of those things that's 15:09
16 reserved until the time of trial. It's not just form --

17 MR. PINKERTON: Objection to form.

18 MR. HARRIS: -- of the question.

19 MR. PINKERTON: It's objection to the
20 form of the question. I'm objecting to the form of the 15:09
21 question, asking him to speculate.

22 MR. HARRIS: Well, that's not the form of
23 the question. I've asked him to speculate.

24 Q. (BY MR. HARRIS) Well, let's go back to it
25 again. 15:10

1 What was being done -- maybe, sir, I
2 should ask you, what was being done on the Rexham test?

15:09

3 A. The Rexham test was to run a gold specifically
4 to see what the level of definition of imagery was --
5 was capable of using the flexo process.

15:10

6 Q. And was it done with a flexographic plate?

7 A. Yes, it was.

8 Q. Was it the same type of arrangement by having
9 it at the end of the press as was present in the
10 situation on 12 -- I beg your pardon, on 16 and 17?

15:10

11 MR. PINKERTON: Object to --

12 Q. (BY MR. HARRIS) -- the two reports?

13 MR. PINKERTON: Object to form.

14 A. Yes, it was.

15 Q. (BY MR. HARRIS) And in conducting the test of
16 16 and 17, it's true, is it not, that after the first
17 pass and the flexographic step was taken, it's true that
18 it was run back through the press for the purpose of the
19 lithographic steps, is it not?

15:10

20 A. No.

15:11

21 Q. Well, how was it done?

22 A. I -- I'm not aware that we ever did run them
23 through for a second pass to put litho on top.

24 Q. So all you did was just put the flexographic?

25 A. Yes, we did.

15:11

1 Q. I see.

15:

2 A. That's been my recollection.

3 Q. Okay. And when was that?

4 A. When was --

5 Q. Yeah. When was that done again?

15:11

6 A. That was done --

7 Q. You're not thinking about the Rexham test, are
8 you?

9 A. Yes.

10 Q. I'm not asking you about the Rexham test right
11 now. I'm asking you --

15:11

12 A. Well, you --

13 Q. -- about the ones that are shown on 16 and 17,
14 your exhibits.

15 A. Well, I'm confused then.

15:11

16 Q. Okay. Well, let me give you a second to get
17 unconfused.

18 A. Sure.

19 Q. Are you unconfused?

20 A. I'm now unconfused.

15:11

21 Q. Let me start fresh.

22 MR. PINKERTON: Yes. Could we have a new
23 question, please?

24 MR. HARRIS: Yeah. Let me start fresh.

25 Q. (BY MR. HARRIS) What I'm asking you is that,

15:

1 it's true, is it not, that it was run through the press
2 and a flexographic step was taken at the end of the
3 press?

15:12

4 A. Correct.

5 Q. And it was just a, what, two-press unit?

15:12

6 A. Two -- two-press unit.

7 Q. And as a matter of fact, it was done at

8 Printing Research, wasn't it?

9 A. It was done at Printing Research.

10 Q. And after it had been run through and the
11 flexographic step taken, well, then, on those runs, it
12 was run through a second time, and lithographic steps
13 were taken.

15:12

14 Is that true, sir?

15 MR. PINKERTON: I want to object to the
16 question as being vague and ambiguous because I don't
17 know what time frame you're talking about. I don't know
18 if you're talking about the December test, Bill, of 1994
19 or some other time.

15:12

20 MR. HARRIS: I'm talking about the tests
21 that are indicated by 16 and 17.

15:12

22 MR. PINKERTON: Okay. So specifically --

23 MR. HARRIS: And I say, it's in the
24 question.

25 Q. (BY MR. HARRIS) Isn't it in the question, Mr.

15:13

1 Bird?

15

2 MR. PINKERTON: I'll object to it because
3 it's not in the question, clearly.

4 MR. HARRIS: Yeah, it is.

5 MR. PINKERTON: You didn't refer to it.

15:13

6 MR. HARRIS: I did.

7 MR. PINKERTON: Okay. If you did, then
8 I'm mistaken.

9 MR. HARRIS: Would you want her to go
10 back and read it?

15:13

11 MR. PINKERTON: No. I say, "if you did,
12 I'm mistaken." I'd like the question --

13 MR. HARRIS: Okay.

14 MR. PINKERTON: -- to be clear.

15 MR. HARRIS: It's clear.

16 MR. PINKERTON: Okay.

17 Q. (BY MR. HARRIS) Do you understand the
18 question?

19 A. I now understand the question.

20 Q. Okay. Go ahead, sir, please.

15:13

21 A. I do not recall us running through those
22 sheets at Printing Research. I do know that the sheets
23 were taken to Williamson Printing for overprinting. But
24 I do not recall us overprinting.

25 Q. Okay. So as you recall it today, sitting here

15:

1 today --

15:13

2 A. Sure.

3 Q. -- the step taken at Printing Research was the
4 flexographic step, and then the product obtained was
5 taken or transferred somehow over to the Williamson --

15:14

6 A. Yes.

7 Q. -- company, right?

8 A. Yes.

9 Q. I understand. And do you know as a fact that
10 they applied lithographic step or steps after that?

15:14

11 A. I do believe so.

12 Q. You believe so, or you know so?

13 A. I believe so.

14 Q. Does that mean you think it's logical, or did
15 you see the end product?

15:14

16 A. I can't recall.

17 Q. Okay. This purpose that's stated on Bird

18 16 --

19 A. Uh-huh.

20 Q. -- the one you wrote --

15:15

21 A. Yes.

22 Q. -- it's true, is it not, that that purpose
23 couldn't all be tested at Printing Research --

24 A. Correct.

25 Q. -- in view of what we've just discussed,

15:15

1 right?

2 A. Correct.

3 Q. So why did you write that down, sir?

4 A. Because that was the end product that our
5 friends at Williamson Printing, were looking for, and so
6 it was important for us to know why we were doing what
7 we were doing.

8 Q. Now, who was present at these tests and at
9 different -- and "these tests," I'm talking about,
10 again, 16 and 17. Who was present at these tests?

11 MR. PINKERTON: Can we break the question
12 down, Bill? Object to form.

13 Q. (BY MR. HARRIS) Who was present at the test
14 of 16?

15 A. The test of 16, you have a list of people that
16 were present.

17 Q. On here?

18 A. Yes. It's on the front page. Turn it back
19 over, you'll see. It says --

20 Q. On front or the back?

21 A. On the front there, you'll see. On the --

22 Q. Yeah, I see it.

23 A. Do you see it? Good. It says, "attendees."

24 Q. Okay.

25 A. Okay?

1 Q. Why don't you read it for the record?

15:16

2 A. It's Jesse Williamson, Bill Davis, Bob Emrick,
3 Jim Johnson.

4 Q. Now, who is Bob Emrick?

5 A. He's a -- he was a Williamson Printing Company
6 employee.

15:16

7 Q. What was his position?

8 A. I -- I'm not sure at the time. I would have
9 to defer to Williamson Printing. I'm not sure of his
10 title. I can't remember.

15:16

11 Q. Jim Johnson, what --

12 A. He was --

13 Q. -- was his position, and who was he for?

14 A. He was Williamson Printing Corporation, and he
15 was the production manager at the time.

15:16

16 Q. And it doesn't have your name on it, but I
17 guess that's --

18 A. Correct.

19 Q. -- implied, huh?

20 A. Correct. We never listed who -- who was
21 present from our side because that -- we didn't think
22 that that was important.

15:17

23 Q. And you don't know of any end product report
24 that exists that occurred after --

25 A. (Indicating.)

15:17

1 Q. -- yes, on No. 16 -- that occurred after the 15.
2 product got back to Williamson? You don't know of any
3 end product report?

4 A. I know that Williamson Printing did come back
5 and say that the -- the results looked very, very 15:17
6 promising and that we -- we were to continue to move
7 forward.

8 Q. Well, then you do know, after all, or believe
9 very deeply that they did perform the next step, huh?

10 A. That wouldn't necessarily be true. 15:17

11 Q. Okay.

12 A. It wouldn't necessarily be true.

13 Q. Explain, please.

14 A. Well, because it would depend on the cut sizes
15 of the sheets, it would depend on the imagery that we 15:18
16 used, and how and whether they wanted to register those.

17 They may have been basing their
18 conclusions on the precision and the -- and the image
19 quality that they had seen plus the opacity levels and
20 brilliance that they'd been able to see. They wouldn't 15:18
21 necessarily be basing that on how it was and whether it
22 was printable on.

23 Q. So you say it's possible they didn't
24 overprint?

25 A. It's possible. 15:

1 Q. Yeah. You think they did but --

15:18

2 A. I -- I would suspect they did.

3 Q. And would the same testimony in that regard
4 apply to Exhibit 17?

5 MR. PINKERTON: Object to the form.
6 Again, it's -- it's vague and indefinite and asking for
7 speculation about what he might suspect.

15:19

8 THE WITNESS: I need to see 17, anyway.

9 MR. PINKERTON: It's right there.

10 (Documents handed to witness.)

15:19

11 Q. (BY MR. HARRIS) Yes. I believe that's the
12 one that -- is it Warren Bird? --

13 A. Yes.

14 Q. -- might have prepared. But you say you were
15 there, right, sir?

15:19

16 A. Yes.

17 Q. And was only Bill Davis there --

18 A. Yes.

19 Q. -- from out of house?

20 A. Yes.

15:19

21 Q. Was the same type of test done by Printing
22 Research as in Bird 16?

23 A. No.

24 Q. What was the difference in the test?

25 A. The difference here was that we were looking

15:20

1 at the different anilox roll cell counts and were
2 clearly trying to establish for ourselves what -- "for
3 ourselves," for Williamson and ourselves -- what levels
4 one could repeat and have a constant in terms of levels
5 of metallic supplied.

6 Q. Do you know anything about the results on 17
7 after -- well, let's be sure of one thing first.

8 Was the product of 17 taken to
9 Williamson?

10 A. It would have been taken to Williamson, but we
11 would have also definitely kept copies --

12 Q. Yeah.

13 A. -- of that product, yes.

14 Q. Well, that would have been true of 16, too,
15 wouldn't it?

16 A. Oh, yes. Yeah.

17 Q. And do you know in the case of 17 whether or
18 not it was overprinted, please?

19 A. I would suspect not, only because, again,
20 we're looking at banding rather than -- or levels of --
21 of luster. At that stage, we're not looking to produce
22 an image, per se.

23 Q. What was being looked for in the Rexham test?

24 A. The Rexham test, because of the application
25 that they had, we were looking for image quality and

1 definition only.

15:21

2 Q. Do you recall the outcome of the Rexham test?

3 A. Yes.

4 Q. It was a satisfactory outcome, I gather?

5 A. It was very satisfactory, yes.

15:21

6 Q. Who was present at the Rexham test?

7 A. I was.

8 Q. Who else?

9 A. John Lapomarde, Susan Seam [phonetic].

10 Q. Who?

15:22

11 MR. PINKERTON: I'm sorry?

12 A. Susan Seam [phonetic], the salesperson. She
13 came from out of town. John Lapomarde and myself.

14 Q. (BY MR. HARRIS) That's all you recall, huh?

15 A. That's all I recall.

15:22

16 Q. Do you recall that there had then -- there had
17 been some business done with Lapomarde over a period of
18 a year or so before that?

19 A. I guess it depends what you're referring to.

20 Q. I'm -- I'm --

15:22

21 A. In terms of?

22 Q. I don't know whether it's efforts to sell him,
23 sir, or actually selling him something, but I am talking
24 about the effort to market with Lapomarde.

25 A. I had been talking with Lapomarde personally.

15:22

1 He was a personal friend, actually. And I had been
2 talking to John Lapomarde for -- since probably 1984,
3 '85 --

4 Q. Uh-huh.

5 A. -- when I first came to be an acquaintance of
6 his.

7 Q. And you would have been interested in selling
8 him something, too, would you not?

9 A. Oh, absolutely.

10 Q. And did you sell him anything before the time
11 of the Rexham test?

12 A. No. Not in terms of Printing Research.

13 Q. There was something when you --

14 A. As my own company.

15 Q. -- before 1991 --

16 A. Before '91, yes.

17 Q. Before '91?

18 A. Yes.

19 Q. How did you contact -- oh, yeah, it's a point
20 on the Rexham test. Who ran the press for the Rexham
21 test?

22 A. I believe Terry -- I can't think of Terry's
23 last name, but there -- there was always a press
24 operator on that test, yes.

25 Q. Did you contact Lapomarde about the test, or

1 did Lapomarde contact you?

15:24

2 A. (Indicating.)

3 Q. I'm talking about the initial contact.

4 A. Oh, the initial contact would have been, in
5 fact, through our association over the years and just us
6 trying to find out what John, if anything, had any
7 interest in purchasing. So I'm assuming that we would
8 have made the initial contact.

15:24

9 Q. Well, then --

10 A. I would have been introducing our salesperson
11 to John at some stage.

15:24

12 Q. Yes.

13 A. With a view to seeing what products might --
14 might be of interest to him. It's the same we conduct
15 all our business.

15:24

16 Q. But getting more specific on -- on the test,
17 which apparently sooner or later was something he wanted
18 to do --

19 A. Uh-huh.

20 Q. -- and something that I gather you thought
21 would further the company in some way?

15:25

22 A. Sure.

23 Q. So tell me, how did that happen? Did you
24 contact him, or did he contact you, realizing you had
25 this friendship?

15:25

1 A. I contacted him. I would assume. 15:

2 Q. Uh-huh. Do you know when you contacted him?

3 A. I would have -- I would have been speaking to
4 John about drying systems, etcetera, for -- for some
5 time. And it could have been any time between, as 15:25
6 I've -- as I've previously said, any time between '84
7 through -- through his retirement. I mean, I was always
8 in contact with John Lapomarde. Not --

9 Q. I'm talking about this --

10 A. -- necessarily every month, but -- 15:25

11 Q. Yeah. I'm talking about --

12 A. -- not every six months.

13 Q. -- the Rexham test now.

14 A. Well, that -- that was something that in my
15 opinion grew out of his interest in resolving an issue, 15:26
16 a problem, that he wanted to -- to resolve and me
17 presenting a product to him that he said he had an
18 interest in.

19 Q. And you presenting your product what?

20 A. To him that he showed an interest in. 15:26

21 Q. And what product was that, sir?

22 A. That was a product that you have listed on
23 the -- the EZ brochure. And we had previously had a
24 coater that was the EZ Coater.

25 Q. You're on what numbered -- 15:26

1 A. That's --

2 Q. -- exhibit now, sir?

3 A. That's Exhibit No. Bird 13.

4 Q. And you're talking about which circled item,
5 how designated? 15:27

6 A. It is circled and designated "EZ," okay?

7 Q. All right, sir.

8 A. It happened that I had had an idea wherein we
9 would sell simply because we had the -- we had a product.
10 that was somewhat of a failure. But out of that 15:27
11 product, we had what I considered some very good
12 experience in manufacture of a recirculation system and
13 an enclosed doctor blade chamber system.

14 I had spoken with John, not just about
15 drying systems, but about whether this could be of 15:27
16 interest to him recognizing that he had and had always
17 stated a strong interest in both anilox roll
18 applications as he had gravure application since his is
19 a -- he's an ex-gravure flexo operator many, many years
20 ago. 15:28

21 And we discussed the potential of
22 employing such a device on his machinery.

23 Q. Well, did -- did you know that it was flexo
24 indeed that he wanted to run? In fact, that was a clear
25 objective, was it not? 15:28

1 A. It became --

15:

2 MR. PINKERTON: I'm going to object.

3 Object to the question as being vague and indefinite.

4 "That was a clear objective." I don't know what that
5 is.

15:28

6 MR. HARRIS: Let me start again.

7 MR. PINKERTON: Okay.

8 Q. (BY MR. HARRIS) Were you aware of what mode
9 of printing he wanted to accomplish?

10 A. No. I was not initially, no.

15:28

11 Q. Did you learn in due course that he wanted to
12 make a flexographic application?

13 A. Yes, I did become aware.

14 Q. And that's something he made you aware of?

15 A. Yes, he did.

15:29

16 Q. And then in your discussions with him, the
17 idea of him letting the company try it out, that's
18 Printing Research, came up. Is that right, sir?

19 MR. PINKERTON: Object to the form of the
20 question. I don't understand it. Vague and indefinite.

15:29

21 Q. (BY MR. HARRIS) So what happened that
22 resulted in a -- coming in for the test?

23 MR. PINKERTON: Again, object to the form
24 of the question.

25 Q. (BY MR. HARRIS) The "it," sir, of course is

15:

1 whatever stock that he was sending in. He did send some
2 stock in, didn't he?

15:29

3 A. That was latter [sic].

4 Q. Yeah.

5 A. That was latter to the order being taken and
6 the -- and the project becoming a reality.

15:29

7 Q. Yeah. Well, what -- what happened? Insofar
8 as after you found out Lapomarde had this interest, what
9 happened?

10 A. John showed us -- John showed us some coating
11 applications where he was showing us that he was having
12 tremendous streaking problems on his OEM-supplied
13 coating applicator. And he had presented to us that the
14 reason he was looking at flexo and/or a flexo applicator
15 system was to overcome those problems and issues.
16 Because of his experience in gravure and flexo
17 technology, it was his belief that that would overcome
18 this problem.

15:30

15:30

19 And he demonstrated the problem to us
20 during one of my visits to him wherein he took a
21 fugitive pigment, a fluorescent luminescent pigment, and
22 put the -- the product under a -- a UV lamp and showed
23 us -- low energy UV lamp -- and showed us the -- where
24 the streaking was occurring on the sheets.

15:31

25 He determined and told us that that was

15:31

1 his purpose for purchasing -- or wanting to purchase,
2 were we interested in such a project?

15:

3 Once again, we -- I returned to Printing
4 Research. We talk about it as a project because he --
5 what it turns out is that he has Komori printing
6 machine, and on the end of that Komori printing machine
7 is a -- is a two-roll coating application.

15:31

8 John is basically saying, "I would like
9 you to supply me an anilox roll coater to install on
10 that machine."

15:32

11 We eventually determined that that's a
12 little bit too big of a project for us and --
13 specifically since one of the -- the plate cylinder
14 and/or the metering cylinder could be converted into an
15 anilox roll, we got John to convert, himself, that
16 roller to an anilox roll.

15:32

17 None of this is at all any knowledge that
18 wouldn't be able to be got from pretty well anywhere at
19 this stage. There are plenty of anilox coaters out
20 there at the end of machines.

15:32

21 And we then got into a contract with him
22 on the basis that he would convert his -- his applicator
23 roll to make it into -- into an applicator to the plate
24 cylinder to an anilox, and we would supply that -- what
25 it became, a product which was the recirculation and

15:~

TO BE USED FOR

1 sealed doctor blade assembly kit.

15:33

2 That was the birth of that product. And
3 it subsequently turned out after he placed the order
4 that John wanted to run tests, needed to run tests to
5 prove that what he'd done and what he'd put into action
6 at his corporation was -- was valid.

15:33

7 And I might be wrong in the timing of
8 that, but nonetheless, we ran a metallic, we ran a
9 metallic gold, and we ran -- I believe we might even
10 have run a pearlescent at that time. And we ran -- but
11 that's all we ran.

15:34

12 And it was then became clear that -- with
13 John that this was not -- the -- the original
14 description to me was not the same description as that
15 which he purchased the unit -- or was purchasing the
16 unit to perform.

15:34

17 And in fact, he told us that his sole
18 purpose was to apply a metallic at the end of a machine
19 since they were in the business of producing cigarette
20 carton packs. And in the -- in the production of
21 cigarette carton packs, certainly in those days --
22 they've all gone offshore, of course, today -- but they
23 were printing the colors, and then they were taking
24 those same cigarettes offline, applying the gold, and
25 then either coating or whatever.

15:34

15:34

1 John saw this as a way to cut out a
2 printing step, a step in the process. And so that's why
3 I say to you, and I said to you earlier, that the two
4 projects, if you like, are not related because --

5 Q. Well, you said they had different objectives. 15:35

6 A. They had very different objectives. His
7 objective was to produce a gold at the end of a press as
8 a -- as a Phillip Morris logo, crown, whatever it may
9 be, RJR, whoever. But you know that it was very common
10 for -- a small gold replica of some description would 15:35
11 appear on a cigarette carton.

12 Q. But in any event, it finally occurred because
13 he wanted a test; is that correct?

14 A. That's when we discovered he wanted to apply
15 metallics, yes. 15:35

16 Q. And you made a test for him at his request?

17 A. At his behest using his plates, yes.

18 Q. And it was a successful test?

19 A. It was a successful test.

20 Q. Okay. And did you learn anything from it, 15:36
21 sir?

22 A. Yes. We learned that we could apply
23 metallics.

24 Q. And you learned you could apply --

25 A. Not that that was new to anybody because -- 15:36

1 Q. You learned you could --

2 A. -- the flexo process is very well-known to be
3 able to do that.

4 Q. It was very well-known?

5 A. That you could -- from a flexo plate, you
6 could -- flexo process, you could apply --

7 Q. Right.

8 A. -- I mean, there's a lot of flexo presses out
9 there doing it.

10 Q. Did you have occasion to show the product to
11 anyone?

12 A. Yes.

13 Q. Who?

14 A. Now --

15 MR. PINKERTON: I'm going to object to
16 the form of the question. When you said, "the product,"
17 Bill, I don't know what "the product" is.

18 MR. HARRIS: Have to look at the prior
19 question.

20 Q. (BY MR. HARRIS) The product of the test.

21 A. Well, I would have shown that off internally.

22 Q. Huh?

23 A. I would have shown it off internally and been
24 very excited about the results of that test, yeah.

25 Q. Did anyone from Williamson see it?

1 A. I'm not sure. I'm not sure that we ever did
2 show those -- those particular tests to Williamson,
3 because by now I believe that we -- the Williamson tests
4 and the Williamson program was somewhat running
5 together.

6 Q. When did the Rexham test take place, sir?

7 A. I'd have to look in my calendars. I -- I
8 don't have recollection.

9 Q. Did you cover it in your Declaration?

10 A. I don't believe so. I don't believe so.

11 Q. Why don't we both look?

12 A. (Witness reviews documents.)

13 Q. In a broad sense, I'll be asking you as we
14 look, did it occur in '94, '93, '95? What year did it
15 occur in?

16 A. Well, it would have had to have been -- it
17 would have had to have been late '94, '95.

18 Q. Late '95?

19 A. Yeah, because we -- no. I said late '94 or
20 '95 only because John did visit our booth, and we do --
21 and that is in my Declaration that he visited our booth
22 in -- in Charlotte, North Carolina, where we discussed
23 the very project because -- in fact, we were, at that
24 stage, marketing that product that you see there as the
25 recirculation system, doctor -- enclosed doctor blade

1 assembly.

15:38

2 Q. Now I'm not following you. Maybe I'm not
3 listening good, but I'm not sure how you are relating
4 the approximate date or computing the approximate date
5 from what you're telling me.

15:38

6 A. Why not?

7 Q. You said it had to be a certain time. Explain
8 to me what you mean.

9 A. Well, because if you note, we used the -- we
10 used the Rexham plate, and I know that -- within some of
11 the Williamson testing. And I happen to know that there
12 wasn't a big discrepancy in the timing of those -- of
13 those tests.

15:39

14 Q. Uh-huh. But the Rexham plate was -- was
15 there?

15:39

16 A. But the Rexham plate was there, and we used
17 it.

18 Q. And it was used?

19 A. Yes. And we did ask Rexham if we could use
20 it.

15:39

21 Q. Why did Williamson not want their plates used?

22 A. They did use their plates. But --

23 Q. Well, then why do you state in these two
24 reports, that is, Bird 16 and 17, about the use of
25 Rexham plates?

15:39

1 A. Just because they were there, and they had -- 15
2 they had imagery that was very helpful in determining,
3 once again, the precision and quality of the image that
4 it was capable of producing.

5 Q. Well, thinking of flexographic plates, is 15:40
6 that -- what is the patent number of the one we called
7 WIMS, it's 9-something or another?

8 MR. DAVIS: 976.

9 MR. HARRIS: 976?

10 MR. DAVIS: I think so. 15:40

11 MR. PINKERTON: Exhibit 4.

12 MR. HARRIS: I've got it as Exhibit 5.

13 MR. PINKERTON: You're right, 5.

14 MR. HARRIS: I'm not used to being right.

15 MR. PINKERTON: You're right this time.

16 It's 5.

17 MR. HARRIS: The witnesses are right
18 sometimes when they answer like they should, but I'm
19 never right.

20 MR. PINKERTON: I was mistaken. It's 5. 15:40

21 MR. HARRIS: Okay.

22 Q. (BY MR. HARRIS) Do -- do you have a pretty
23 good knowledge of this process of the 976 Patent
24 that's --

25 A. Yes. 15:

1 Q. -- Bird 5?

2 A. Yeah, fair.

3 Q. Is there a flexographic plate involved --

4 A. No.

5 Q. -- in that?

6 No flexographic step is explained, is
7 there?

8 A. No.

9 Q. In fact, it doesn't say anything about
10 printing except maybe one or two words in the thing
11 said, "after all of this preprint preparation, print."

15:41

12 Is that true, sir?

13 A. True.

14 Q. Do you see a relation of any kind, sir,
15 between the 976 and the 3 -- is it 63?

15:41

16 MR. PINKERTON: 363.

17 Q. (BY MR. HARRIS) -- and the 363?

18 A. Oh, yes. 363 --

19 Q. What in the world -- yeah.

20 A. 363's an improvement.

15:41

21 Q. Why do you call it an improvement, sir? Tell
22 me, what's it an improvement of?

23 A. It's an improvement of the quality of the gold
24 and the metallics, etcetera, that are applied. I think
25 that's explained in the patent, actually.

15:42

1 Q. Well, I'm willing to admit, I didn't find it 15
2 as being an improvement over that.

3 A. Okay. I guess you would have to be able to
4 see the process to understand.

5 Q. Have you seen it? 15:42

6 A. Yes.

7 Q. Maybe I should.

8 MR. PINKERTON: See what, Bill?

9 MR. HARRIS: Never mind. At this point,
10 it's colloquy, more or less, between the witness and the 15:42
11 questioner.

12 MR. PINKERTON: I thought it might be.

13 MR. HARRIS: Yeah.

14 THE WITNESS: That's fine.

15 Q. (BY MR. HARRIS) But you agree with me that 15:42
16 there's a relatively material distinction between the
17 976 and the 363, would you not?

18 MR. PINKERTON: I will --

19 A. No.

20 MR. PINKERTON: -- object to the form of 15:42
21 that question because it's -- "relatively material
22 distinction," I don't know what you mean.

23 MR. HARRIS: All right. I'll let the
24 question stand.

25 MR. PINKERTON: There's a patentable

1 distinction.

15:43

2 MR. HARRIS: You are coaching the
3 witness.

4 MR. PINKERTON: Well, I don't know what
5 you mean by "relatively" -- what was his term?

15:43

6 MR. HARRIS: I think what he means is he
7 didn't like your answer.

8 MR. PINKERTON: No. I didn't even hear
9 the answer. I'm objecting --

10 MR. HARRIS: He didn't like your answer.

11 MR. PINKERTON: I'm objecting to the
12 question. I don't know what --

13 MR. HARRIS: You don't know what his
14 answer is, but you're objecting to the question?

15 MR. PINKERTON: Yeah, before the -- it
16 was --

15:43

17 MR. HARRIS: I think we have an answer.

18 MR. PINKERTON: -- vague and ambiguous.
19 I don't think we got an answer, but in any event, I
20 object --

21 MR. HARRIS: We had an answer --

22 MR. PINKERTON: -- to the question.

23 MR. HARRIS: -- what's the answer?

24 MR. PINKERTON: Object to the form of the
25 question.

15:43

104T50" 964T50"

1 THE REPORTER: Do you want me to --

15:

2 MR. HARRIS: Yeah, read back his answer.

3 (Record read by reporter.)

4 MR. HARRIS: Object what --

5 MR. PINKERTON: See, I objected before he
6 answered, Bill. He didn't answer.

7 MR. HARRIS: He didn't answer?

8 THE REPORTER: If he answered --

9 MR. HARRIS: Okay. Read back the
10 question --

11 THE REPORTER: -- it was over each other.

12 MR. HARRIS: -- read back the question,
13 we'll note that Mr. Pinkerton is making that objection.

14 (Record read by reporter.)

15 MR. PINKERTON: Okay. Object to the form
16 of the question in regard to vague and ambiguous.

15:44

17 MR. HARRIS: I couldn't even hear my own
18 question there.

19 THE WITNESS: And I don't understand it.

20 MR. HARRIS: I don't either from here.

15:44

21 THE WITNESS: So --

22 Q. (BY MR. HARRIS) Would you agree with me that
23 there is a fairly substantial degree of distinction
24 between the 976 Patent, what it teaches, and the 363
25 Patent?

15:44

1 MR. PINKERTON: I'm going to --

15:44

2 Q. (BY MR. HARRIS) And you have the two patents.

3 MR. PINKERTON: Are you asking if the
4 processes are different, Bill? Or -- I don't know,
5 "material distinction."

15:44

6 I object to the form of the question
7 because I don't know what you're asking him.

8 A. I -- I don't understand you, still. I don't
9 understand what you're saying.

10 Q. (BY MR. HARRIS) So you don't know?

15:44

11 A. Well, I guess --

12 MR. PINKERTON: He didn't say that. He
13 doesn't understand your question.

14 A. -- I guess I don't understand your question --

15 Q. (BY MR. HARRIS) Okay.

16 A. -- and that makes it tough to say I know or I
17 don't know.

18 Q. My question is, what improvement is there that
19 you find between the 976 and the 363? Of course, the
20 363 would be the improvement. What improvement do you
21 find, if it's an improvement?

15:45

22 A. The improvement that I see?

23 Q. Uh-huh.

24 A. I see?

25 Q. Yes, sir.

15:45

1 A. As a layperson, I see the --

15.

2 Q. I certainly agree you're a layperson, sir.

3 It's okay.

4 A. Thank you -- is that it's -- there is an
5 improvement in the brilliance.

15:45

6 Q. In the what?

7 A. In the brilliance of the gold, in the
8 application -- when I say gold, metallics -- in the
9 application of those metallics. And there is -- there
10 is an overall quality improvement.

15:45

11 Q. Uh-huh. There is no --

12 A. That is clear.

13 Q. -- application -- I'm sorry. Did you finish?

14 A. I believe so.

15 Q. There's no application means provided in the
16 976, is there, sir?

15:46

17 MR. PINKERTON: Objection to the form of
18 the question. When you say, "There's no application
19 means," I don't -- are you talking about --

20 MR. HARRIS: Well, he used the word
21 "application." He just used it.

15:46

22 MR. PINKERTON: I'm going to object
23 because I don't know how you're using it. I don't know
24 how he used it --

25 MR. HARRIS: I'm using it the way he used

15:46

1 it.

2 MR. PINKERTON: I don't know how he used
3 it, so I'm objecting to the form of the question. Vague
4 and ambiguous.

5 MR. HARRIS: Well, you must be objecting
6 to his answer then --

7 MR. PINKERTON: I don't know what --

8 MR. HARRIS: I'm using "application" the
9 same way you're using it. I think we're --

10 MR. PINKERTON: I don't know what was
11 meant.

12 A. The application by the flexo process, I
13 believe, was an improvement over the application through
14 the litho process.

15 Q. (BY MR. HARRIS) The litho process as such,
16 while your probably right, is not mentioned specifically
17 in the 363, is it?

18 MR. PINKERTON: Objection to the --
19 well --

20 Q. (BY MR. HARRIS) I beg your pardon. Is not
21 mentioned specifically in the 976, is it?

22 A. As far as I know, you're correct.

23 Q. And when you -- when you say, "improvement
24 over the litho," it's a reasonable, what, a reasonable
25 implication --

1 MR. PINKERTON: What's a "reasonable" -- 15:
2 object to the form.

3 Q. (BY MR. HARRIS) A reasonable application
4 being it was a litho step in the 976 that was utilized,
5 or litho steps? 15:47

6 A. It -- it was probably reasonable at that time,
7 yes.

8 Q. Looking at the second page of the 363 Patent,
9 Bird 6, would you tell me what's shown in Figure 2, if
10 you know? 15:48

11 A. Figure 2. It's a -- an interstation coating
12 application, I believe.

13 Q. And is a retractable or movable or
14 displaceable coater shown?

15 A. Yes. 15:48

16 Q. And what type of a coater is that?

17 A. It's a -- I believe an anilox roll coater.

18 Q. Is that what you would refer to as the
19 Rendleman coater?

20 A. It's what I would refer to as a flexo coater. 15:48

21 Q. And that was called the Rendleman coater
22 around Printing Research, was it not?

23 A. That was called the Rendleman coater at
24 Printing Research.

25 Q. And indeed, others have called it that, have 15:

1 they not, outside of --

15:49

2 A. Not that I'm aware of.

3 Q. Do you know from these gentlemen over here,
4 listening to them, that is, Mr. Williamson and
5 Mr. Williamson, if they have ever referred to it as the
6 Rendleman coater?

15:49

7 A. Not that I'm aware of.

8 Q. Not that you know?

9 A. No.

10 Q. So your -- your belief is that it was called
11 the Rendleman coater, but that was a company term; is
12 that right?

15:49

13 A. Internal company term, yes.

14 Q. Uh-huh. Is there -- well, let me ask you
15 this: It would be possible, would it not, to not use
16 this Rendleman coater or some other similar device at
17 all but just have what is known as a dedicated station,
18 would it not?

15:50

19 A. A --

20 Q. A dedicated station for the application of the
21 flexo step?

15:50

22 A. Are you saying a --

23 Q. It would be possible?

24 A. -- dedicated flexo station?

25 Q. Yes, yes.

15:50

1 A. Of course.

2 Q. And why is that not done instead of going to
3 the trouble to add some extra machinery to the press?
4 In other words, the coater, the retractable coater?

5 MR. PINKERTON: I want to object in terms
6 of time frame, Bill, or -- I mean it's just -- it's a
7 broad, general question. I don't really know what time
8 frame or what context you're putting that in.

9 You said, "Why wasn't it done?" Who
10 didn't do it, at what time, or whatever?

11 MR. HARRIS: Well, let me try it again.
12 I'll talk about now.

13 MR. PINKERTON: Okay.

14 MR. HARRIS: That's a good solid thing.

15 MR. PINKERTON: Okay.

16 Q. (BY MR. HARRIS) Now why is it people don't
17 just have a dedicated station and not mess around with
18 one of these coaters like the Rendleman coater?

19 A. Because in the sheet-fed industry, it's my
20 belief that there are -- the people that make litho
21 presses, make litho presses; and the people that make
22 flexo presses, make flexo presses. And the two do not
23 mix.

24 Q. Never the twain shall meet?

25 A. Never the twain shall meet. That's what --

1 Q. Well --

2 A. -- I believe is --

3 Q. -- would it also be possible that -- that

4 perhaps if you had a dedicated station on one of -- say,

5 for a first station --

15:51

6 A. Uh-huh.

7 Q. -- that you'd have to have another press that
8 was all lithographic stations?

9 A. I --

10 MR. PINKERTON: I'm going to object to
11 the form of the question. To do what?

15:51

12 A. I don't understand.

13 MR. PINKERTON: Yeah. Object to the
14 form.

15 A. I don't understand. I don't understand your
16 question.

15:52

17 Q. (BY MR. HARRIS) Have you ever seen a
18 lithographic press?

19 A. Several.

20 Q. I bet.

15:52

21 A. Several.

22 Q. Imagine a lithographic press sitting here. If
23 you don't do anything to it, it's not going to apply a
24 flexographic step, is it?

25 A. You're absolutely correct.

15:52

TOP SECRET

1 Q. All right. And so if I have the need -- 15

2 A. Except it -- it might have a flexo coater on
3 the end of it.

4 Q. Well, it might on the end --

5 A. Yeah.

6 Q. -- but let's talk about front.

7 A. Okay.

8 Q. Is that all right with you?

9 A. That's okay with me.

10 Q. You will agree with me that you'd have to do 15:52
11 something, and that's what's done here, in order to
12 provide a flexographic step at the front?

13 A. Right.

14 Q. One way to do that would be to have a
15 dedicated station. Do you agree with me on that? 15:52

16 A. I agree.

17 Q. And all in the world I said is, I was just
18 thinking about the economics. We were puzzling about
19 why, okay?

20 In -- in one sense of the word, if you 15:53
21 didn't have a coater, this extra machinery you put in,
22 you'd have to have a completely separate line; isn't
23 that true?

24 A. There's some truth to your statement.

25 Q. Okay. 15:

1 A. Some. 15:53

2 Q. Do you want to dissect it quickly?

3 A. If you've got the time.

4 Q. No. You've absolutely educated me on that.

5 No, I -- I don't. I'm sure you could come up with some 15:53
6 way to dissect it.

7 But the general idea you have is lithos
8 make litho, and flexo manufacturers --

9 A. That's generally the case.

10 Q. -- make flexos, and that's the reason you have 15:53
11 to do it.

12 And all I'm doing is suggesting that
13 there could be some need to have to have two different
14 press lines if you didn't have a device of some sort to
15 convert. 15:54

16 Do you understand my thesis?

17 A. I -- I do.

18 Q. Is it a possible situation?

19 MR. PINKERTON: Objection to -- in regard
20 to the form of the question. Again, speculation. 15:54

21 MR. HARRIS: Well, I expect this man
22 knows the answer to that.

23 A. It's possible, but it's also possible that you
24 might build a press with a flexo unit in-line to
25 dedicate it. 15:54

1 Q. (BY MR. HARRIS) Yeah. Well, isn't that what
2 we said?

3 A. Well, I said it's possible.

4 Q. Oh, okay. You're agreeing, then, that what I
5 said is possible?

6 A. Anything's possible.

7 MR. PINKERTON: I think -- he's saying --
8 you started talking about two separate lines, Bill, and
9 then he said, "Yeah, you could do two separate lines."
10 Then he said you could do a flexo station built into a
11 lithographic press as a first station. Is that what I
12 understood you to say?

13 THE WITNESS: Yeah --

14 MR. HARRIS: That's right. We agree on
15 that.

16 MR. PINKERTON: Okay. Okay.

17 MR. HARRIS: And so maybe I should leave
18 it there instead of --

19 MR. PINKERTON: Yeah.

20 MR. HARRIS: -- get into a --

21 THE WITNESS: Probably.

22 MR. PINKERTON: I think that's --

23 MR. HARRIS: It gets kind of hairy after
24 that, doesn't it?

25 THE WITNESS: Yeah, it does.

1 MR. HARRIS: Okay.. 15:55

2 MR. PINKERTON: At which end of press.

3 MR. HARRIS: I'll regard that as too
4 theoretical.

5 Excuse me while I retrieve something. 15:55

6 (Sotto voce discussion.)

7 MR. HARRIS: I'd like to mark this as --

8 THE REPORTER: Would you like to continue
9 in order?

10 MR. HARRIS: Yeah, just take his numbers.

11 THE REPORTER: Okay.

12 MR. HARRIS: I think he stopped at 17.

13 THE REPORTER: Yes, sir.

14 (Deposition Exhibit No. 18 marked.)

15 MR. HARRIS: I've only got one copy, but
16 I know you've gotten this from me recently.

17 MR. PINKERTON: Sure have.

18 MR. HARRIS: And I didn't even know we
19 had the thing.

20 Q. (BY MR. HARRIS) This is a brochure or a
21 nonprinted copy of a brochure. 15:57

22 (Documents handed to witness.)

23 A. I'm familiar with it.

24 Q. When did you become familiar with it?

25 A. These -- these presses are produced and have 15:57

1 been -- this type of press, not this particular press -- 15:
2 have been produced for many years now, go back to
3 mid-eighties.

4 Q. I see. Well, don't hand it back to me.

5 A. Oh, sure, okay. 15:57

6 Q. Practically a gift.

7 A. Oh, thank you.

8 Q. You're welcome, sir.

9 A. Thank you.

10 Q. Can -- can you tell me what it is that's 15:57
11 illustrated?

12 A. It's illustrated the -- the combination of
13 litho and flexo applications on a -- on a litho/flexo
14 press.

15 Q. Well, is there any fixed pattern to where the 15:58
16 litho is and where the flexo is?

17 A. Not necessarily, no, not at all.

18 Q. Have such presses been operated -- and I'm
19 referring to Exhibit 18 -- have such presses been
20 operated in the past with both flexo and litho in 15:58
21 operation?

22 A. Yes, they --

23 MR. PINKERTON: I'm going to object to
24 the -- I'm going to object to the form of the question
25 because "such presses" is vague and indefinite. 15:59

1 There is only one configuration of press
2 depicted in Exhibit 18, and I think that's all this
3 exhibit discloses. It's a litho press with a flexo unit
4 at the end and -- now, if you want to talk to him about
5 something else --

15:58

15:59

6 MR. HARRIS: Well, I'm going to talk to
7 him about what I want to talk to him about.

8 MR. PINKERTON: I understand you will. I
9 understand you will. But I'm going to object if it's
10 vague.

15:59

11 MR. HARRIS: All right. Well, it
12 couldn't be vague if I asked him.

13 MR. PINKERTON: It might be. You've had
14 some of those.

15 MR. HARRIS: It couldn't possibly be.

15:59

16 Q. (BY MR. HARRIS) He says it's the same. Would
17 you look on the two different sides pretty carefully and
18 see if you can verify that he's correct?

19 MR. PINKERTON: Well, when you say, "the
20 same" --

15:59

21 A. I don't know what you mean by "the same,"
22 but --

23 Q. (BY MR. HARRIS) Well, he's the one that's
24 talking.

25 MR. PINKERTON: No. I said there is only

15:59

1 one --

15

2 A. There is only one --

3 MR. PINKERTON: -- press configuration.

4 A. -- press configuration, and they show the
5 flexo unit on the last unit.

15:59

6 Q. (BY MR. HARRIS) Well, that's what I want to
7 know.

8 A. Okay.

9 Q. Because he's trying to make you believe the
10 other.

15:59

11 A. It's true.

12 Q. No. About where the flexo units are, sir.

13 A. It's in the last unit.

14 Q. On both configurations?

15 A. I only see one flexo unit.

16:00

16 Q. Well, why don't you turn to the other page and
17 look at those little cans down there that are seated on
18 the --

19 A. Well, they -- that could be that they are
20 supplying flexo to those --

16:00

21 Q. Well, that's where the ink's coming from,
22 isn't it, sir?

23 A. Could be.

24 Q. It is, isn't it, sir?

25 A. In this case, it is.

16:

1 Q. Yes, it is. And so tell me now where -- tell
2 me now where it's the first station, necessarily, and
3 nothing else. You believe and I believe that the cans
4 right there --

16:00

5 A. I believe that's true.

16:00

6 Q. -- show the -- yeah, that's --

7 A. I believe that's true.

8 Q. -- that's flexo station.

9 A. Sure.

10 Q. So is that at the beginning of the unit?

11 A. It's --

12 MR. PINKERTON: If you know from this
13 exhibit. Can you tell from this exhibit if it is?

14 THE WITNESS: That's a good indication.

15 The cans are a --

16:01

16 MR. PINKERTON: Can you --

17 THE WITNESS: -- good indication.

18 MR. PINKERTON: -- can you tell one way
19 or another?

20 MR. HARRIS: He said it's "a good
21 indication."

22 MR. PINKERTON: He said it's "a good
23 indication," but does he know for sure?

24 MR. HARRIS: The objecter has asked and
25 answered and is trying to have redirect examination.

16:01

1 MR. PINKERTON: Well, I'm objecting to
2 the leading form of the question, and I don't want the
3 witness to speculate about was there or not. It either
4 shows it or it doesn't. It doesn't. It doesn't have to
5 be speculated about.

6 MR. HARRIS: Quit leading the witness
7 here while you're defending, okay?

8 MR. PINKERTON: I'm not leading the
9 witness.

10 MR. HARRIS: I didn't do that to you.

11 MR. PINKERTON: I know, Bill, but I'm not
12 leading the witness. I just don't want the record to
13 have speculation in it.

14 MR. HARRIS: You don't want to record to
15 have anything in it that's harmful to you.

16 MR. PINKERTON: I want the record to have
17 the truth. And this witness needs to not speculate
18 about it. It's either shown there or it's not.

19 Q. (BY MR. HARRIS) Well, you can spend as long
20 with it as you like.

21 A. The drawing shows that it's at the last unit.

22 Q. That's on one side. When you get to the other
23 side, you get another illustration.

24 A. The photograph doesn't show you where the
25 flexo units are.

1 Q. But what -- what do the cans mean? You know.
2 You stated that you thought --

16:02

3 A. They could mean anything, actually.

4 Q. Yeah. But you stated a minute ago, what?
5 Until you were thoroughly coached by your friend over
6 there.

16:02

7 MR. PINKERTON: No, we're just -- it's
8 important not to speculate, and so that's what we're
9 talking about here. "The cans." I mean, what are you
10 talking about on "cans"?

16:02

11 THE WITNESS: (Indicating.)

12 MR. HARRIS: He's pointing his finger to
13 them. He sees them.

14 Q. (BY MR. HARRIS) They're -- they're ink wells,
15 so to speak, are they not, sir?

16:02

16 A. They are.

17 Q. So at least they are ink wells, and being as
18 such, the indication would be -- that's what I'm asking
19 you is, the indication would be that the flexo -- the
20 cartridges are so mounted that the flexo units are there
21 where the cans are?

16:02

22 A. That would be a fair indication.

23 Q. Okay. Now, are you aware that there's been
24 such a mode of operation over the years off and on?

25 A. Yes.

16:03

1 MR. PINKERTON: Now, which "mode of
2 operation" are we talking about?

3 MR. HARRIS: A mode of -- the mode of
4 operation that we, if you like, thought most likely from
5 the side that has RDP Marathon Inc., reliable, durable,
6 precision printed in the left-hand corner.

7 MR. PINKERTON: Are you talking about a
8 unit with cans or a unit with inks or -- it's vague and
9 ambiguous as to what you're talking about and so --

10 MR. HARRIS: You can talk all you want --

11 MR. PINKERTON: -- object to the form of
12 the question.

13 MR. HARRIS: -- to. I'm satisfied with
14 where we are. Let's -- I've gone on to another
15 question.

16 MR. PINKERTON: Okay.

17 Q. (BY MR. HARRIS) And the question I've gone on
18 to is: have you seen units with random mountings or
19 mountings away from the last unit --

20 A. Yes, I have, but they bear no relevance to
21 this case.

22 Q. -- with RD [sic] Marathon type of
23 configuration?

24 A. Yes. And they bear no relevance to this case.

25 Q. Well, that's your opinion. I thought you told

1 me you weren't a lawyer here a minute ago?

16:04

2 A. That's true. I'm not a lawyer.

3 Q. I thought you said you were a layman?

4 A. I am a layman.

5 Q. All right.

16:04

6 A. I'm both.

7 MR. PINKERTON: He's also --

8 Q. (BY MR. HARRIS) And a good one, I'm sure?

9 MR. PINKERTON: He's also 40 years of

10 experience in the printing business.

16:04

11 MR. HARRIS: Yeah. That's right, but
12 that's -- I won't try to tell you how to print. I won't
13 tell you how to sell printing devices.

14 THE WITNESS: Thank you.

15 Q. (BY MR. HARRIS) But I will ask you, leaning
16 on that experience, what you have seen over the years in
17 the way of presses, whether or not you consider them
18 relevant.

16:04

19 And that's what I'm asking now, and I
20 believe you're telling me that you have seen this RD
21 [sic] Marathon type of a device -- RDP Marathon type of
22 device that's illustrated in the blue coloring?

16:04

23 A. Uh-huh.

24 Q. With flexographic units mounted at spots other
25 than the end of the press?

16:05

1 A. Yes, I have.

16:

2 Q. What were they doing when in operation?

3 A. Usually, they're used for lottery ticket
4 production, in many cases.

5 THE WITNESS: I'm glad I get your
6 approval on that.

16:05

7 MR. PINKERTON: Whose approval is that?

8 THE WITNESS: Mr. DeMoore's.

9 MR. PINKERTON: Okay.

10 MR. DEMOORE: I agree with what's true.

11 THE WITNESS: Thank you.

12 A. I -- I know that they're used in -- in all --
13 not all, but many, many security print applications.
14 And in the security print operations, you're looking for
15 very high coverage inks and/or covering materials that
16 you're trying to obliterate.

16:06

17 As in the case of a lottery ticket,
18 you're trying to obliterate a -- a lottery ticket number
19 and/or hide a code, etcetera, and that is the purpose.

20 They are only used in narrow web
21 applications. I have never seen them in anything wider
22 than a 26-inch press. I've actually installed on such
23 machines --

16:06

24 Q. (BY MR. HARRIS) I bet you have.

25 A. -- and I can assure you that this is their

16:

1 application.

16:06

2 THE VIDEOGRAPHER: We're going to need to
3 stop and change the tape.

4 MR. HARRIS: Why don't we take a break so
5 Pinkerton and I can holler at each other.

6 THE VIDEOGRAPHER: Time is 4:06 p.m.
7 We're off the record.

8 (Recess from 4:06 p.m. to 4:25 p.m.)

9 THE VIDEOGRAPHER: The time is 4:25 p.m.
10 We're on the record.

16:25

11 Q. (BY MR. HARRIS) Mr. Bird, we had a little
12 break, and we're -- we're all back here to get this job
13 done.

14 My first question to you is going to
15 center around any conversations you had with
16 Mr. Pinkerton or Mr. Falk or anyone else that related in
17 any way to this case over the break.

16:25

18 Did you have any conversation that
19 related, for example, to the last exhibit that we were
20 discussing?

16:26

21 A. Yes.

22 Q. Would you tell me what -- who did the talking,
23 and who did the what? What happened in detail?

24 A. I -- I expressed my opinion as to the
25 relevance of that brochure.

16:26

1 Q. Well, it was about relevance that you were 16
2 talking rather than structure. Is that right, sir?

3 A. Correct.

4 Q. All right. And I suppose that for perpetuity,
5 we should know what your opinion is that you expressed 16:26
6 and to whom you expressed it.

7 A. I expressed to both Bob and to -- Bob Falk and
8 to John Pinkerton that I thought that it was totally
9 irrelevant.

10 Q. Are you -- I'll be brief about this, but are 16:26
11 you able to interpret patent claims, sir?

12 A. Not to any great degree, no.

13 Q. In the courses of reissue, but we've got 363
14 here. And if you look at the claims, I would ask you
15 now to tell me anywhere that it says anything other 16:27
16 than, in effect, flexograph and then lithograph?

17 MR. PINKERTON: Based on his knowledge of
18 the claims, I don't think it's appropriate that he would
19 answer something like that. He doesn't have the
20 knowledge to go through those. 16:27

21 MR. HARRIS: Well, he needs to tell me
22 whether -- what you're telling me. He says, "Bill, I
23 don't know. I don't know anything about claims," or "I
24 couldn't do that because I'm not able to," I'll take
25 that. 16:2

1 MR. PINKERTON: He didn't say that he
2 didn't know anything about claims, but he has some
3 limited knowledge. I don't think that he could legally
4 read it. And his opinion, Bill, I think is, again,
5 layman's side. He has a layman's opinion.

16:27

6 MR. HARRIS: I thought he --

7 MR. PINKERTON: Do you want his layman's
8 opinion?

16:28

9 MR. HARRIS: I thought he thought he was
10 an expert, not in the area of law, but an expert.

16:28

11 MR. PINKERTON: The testimony is a lay
12 opinion as I understand it on the record. He said that.
13 If you want his opinion, he can -- put it on the record.

14 MR. HARRIS: Well, what did he do, give
15 you that same lay opinion?

16:28

16 MR. PINKERTON: Yeah.

17 Q. (BY MR. HARRIS) Did you elaborate on the
18 opinion --

19 A. Yes.

20 Q. -- you gave me earlier --

16:28

21 A. Yes.

22 Q. -- which was, in your opinion, it didn't have
23 any relevance?

24 And you were talking about, as I could
25 gather, more than anything else, what it was being done

16:28

1 for ultimately. Is that true, sir?

16

2 A. That's true.

3 Q. And that's what your opinion of relevance was
4 based on, was it not?

5 A. Yes, it was.

16:28

6 Q. And my questions to you were more structural,
7 were they not?

8 A. You'd have to explain what you mean by that.

9 Q. By "structural," I mean like things or
10 methods, and I don't mean results.

16:29

11 A. Then they were structured.

12 MR. HARRIS: Would you mark this, please?
13 Is that 18 or 19?

14 THE REPORTER: 19, sir.

15 (Deposition Exhibit No. 19 marked.)

16 Would you like for me to hand it to him?

17 MR. HARRIS: Yes.

18 (Documents handed to witness.)

19 MR. PINKERTON: Bill, did I get a copy of
20 that? I'm sorry. Is this for me?

21 MR. HARRIS: Yeah. I -- I put it out.

22 You know, Falk is some lazy, he won't reach out and pick
23 it up.

24 MR. PINKERTON: I know. We have to get
25 after him. Okay.

1 Q. (BY MR. HARRIS) All right. Would you briefly 16:30
2 flip through that to familiarize yourself with it? I
3 trust, again, you've read that before, haven't you?

4 A. I have. I believe so.

5 MR. PINKERTON: And was this marked 16:30
6 as exhibit --

7 MR. HARRIS: 2. I don't mean 2. 19 --

8 MR. PINKERTON: 19?

9 MR. HARRIS: 19. I'll get it in a
10 minute. 19.

11 A. (Witness reviews documents.)

12 Q. (BY MR. HARRIS) Are you through? Tell me
13 when you are.

14 A. Oh, I'm through. Yeah, sure.

15 Q. Just passing the time of day? 16:31

16 A. (Indicating.)

17 Q. Now, sir, you executed that as an inventor,
18 did you not?

19 A. Yes.

20 Q. And you, I gather, have decided you're not an 16:31
21 inventor?

22 A. I'm glad to hear that.

23 Q. That's what you decided, isn't it?

24 A. Excuse me?

25 Q. You decided you're not an inventor? 16:31

1 A. Oh, I thought you said it had been decided. 16

2 Q. No, no. No, no, not at all.

3 A. Okay.

4 Q. I just wanted to know what you felt about it.

5 Are you an inventor or aren't you insofar as the 16:32

6 application is concerned that's been marked 19?

7 A. I am named as an inventor, but I don't regard
8 myself as an inventor of this application, no.

9 Q. Why -- could you tell us -- well, you will
10 agree, you signed it, and you took a declaration or oath 16:32
11 in so doing?

12 A. Yes, I did.

13 Q. And that is one that says it's subject to the
14 laws of the United States for penalty of perjury if you
15 misstate? 16:32

16 A. That's true.

17 Q. Why, sir, have you -- put it this way, have
18 you then changed your mind since you've signed it?

19 A. I don't think I've changed my mind since I've
20 signed it, but I feel that there's a -- when you are 16:32
21 asked by your employer to sign a piece of paper that
22 states that you are an inventor and that you are a
23 coinventor on a piece of paper, I think that it's very
24 difficult not to do that.

25 Q. Well, sir, there's a procedure where we could 16:32

1 go before the Patent Office and have your name removed 16:33
2 from that if you would like. Did you ever hear of such
3 a procedure?

4 A. No, I didn't, but --

5 Q. But everyone has to be agreeable to it. You 16:33
6 would have to be agreeable, Printing Research would have
7 to be agreeable, and Howard DeMoore would have to, and
8 Mr. Rendleman would have to.

9 But it could be done, and you might think
10 about it a little more. 16:33

11 A. Sure.

12 Q. In any event, you think it's very marginal at
13 best, huh?

14 A. I think it's marginal at best.

15 Q. And I also gather from what you've said that 16:33
16 you think that the inventor is Ron Rendleman.

17 A. I think the inventor of the Ferris wheel
18 movement -- I thought the inventor of the Ferris wheel
19 movement was Ron Rendleman, yes.

20 Q. Have you seen a line working with the 16:34
21 Rendleman coater on it at the front end?

22 A. Depends how you determine "working."

23 Q. Printing.

24 A. I've seen it in operation on a machine, yes.

25 Q. Where? 16:34

1 A. At Williamson Printing. 16

2 Q. When?

3 A. Back in the mid to late '90s.

4 Q. November or December of nineteen hundred and
5 ninety-five? 16:35

6 A. '95 -- late '95, '96 maybe. Somewhere in
7 there.

8 Q. As far as you know, was that the first time
9 that such an operation was conducted?

10 MR. PINKERTON: "Such an operation" using 16:35
11 particularly a coater that had been made --

12 MR. HARRIS: I'm calling it the Rendleman
13 coater. I think there's sufficient back -- background
14 to call it that --

15 MR. PINKERTON: Okay. 16:35

16 MR. HARRIS: -- whether everybody in the
17 world does or not.

18 MR. PINKERTON: Okay. I understand the
19 question now.

20 A. Yes. 16:35

21 Q. (BY MR. HARRIS) And getting away from all the
22 legalism involved, from a technical point of view, was
23 the operation you saw one that proved that the line
24 would work to accomplish the given objective in the
25 sense intended, that it was generally workable? 16:35

1 MR. PINKERTON: I'm going to object to
2 the form of the question in regard to vague and
3 ambiguous as to "proved."

4 Q. (BY MR. HARRIS) Did it show it ever worked?

5 A. No.

6 Q. What did it show?

7 A. It showed that you could apply metallic to a
8 sheet, but it didn't do it very successfully.

9 Q. And that was when it was applied to the
10 multistation Heidelberg and --

11 A. Yes.

12 Q. Why was that -- kill that.

13 Do you have any knowledge of the extent
14 to which Mr. Rendleman and Mr. DeMoore may have had
15 conferences that related to the topic of the Rendleman
16 coater?

17 A. I don't have knowledge of the amount of -- and
18 I'm not prepared to speculate on that.

19 Q. Right. So it could be there was a bunch, and
20 it could be there was none, right?

21 A. Could be. Could be.

22 Q. Could be anything?

23 A. Could be anything, and it could be nothing.

24 Q. Do you have a recollection of a meeting at
25 some time or another with a patent lawyer from Dallas

1 where the notion was expressed of using something, which 16
2 turned out to be a Rendleman coater, in a printing line
3 for the purpose of first laying down a flexographic step
4 and then thereafter a lithographic step?

5 A. Yes. 16:38

6 Q. Can you recall when that was?

7 A. No.

8 They would have been in-house meetings,
9 and I don't keep notes -- didn't keep notes of in-house
10 meetings. 16:38

11 Q. Did you have a vacation in July of '94?

12 A. I doubt it.

13 MR. HARRIS: Are they July?

14 MR. WILSON: We're missing all of July.

15 Q. (BY MR. HARRIS) We're missing all of July. 16:39

16 We understand maybe there's reason for that and that
17 nothing happened in July.

18 A. July, if there's no -- no July, it's because
19 there was nothing that was happening within the --
20 within the corporation or outside of the corporation. 16:39
21 But since it was not my habit to take vacations, I don't
22 believe I was on vacation in July of '94 or '95.

23 Q. Are you related to either one of Bird & Bird?
24 I bet you know who they are.

25 A. I have no idea who they are. 16:..

1 Q. Oh, really? They're among the most famous
2 solicitors in London. Shows how much you think of
3 lawyers.

4 A. It shows an awful lot of how much I think of
5 lawyers.

6 Q. Well, tell me, did you just stay in-house all
7 of July? You didn't -- didn't go out to Williamson one
8 time during July?

9 A. Probably.

10 Q. Probably what?

11 A. Probably went out to Williamson during July.

12 Q. Just didn't record it?

13 A. Just didn't record it.

14 Q. You mean there are times that you didn't
15 record?

16 A. Oh, sure. You know, if I was --

17 Q. As I recall you were --

18 A. -- as I would call -- as I would make a point
19 to you of noting is that we were having some severe
20 problems at Williamson relative to their equipment.

21 And so I would often get called out to
22 Williamson at a moment's notice, and that wouldn't have
23 necessarily been due to a -- a recorded appointment.
24 And therefore, I would be over there to try and resolve
25 problems that we had on their machinery, which were --

1 Q. Do you --

2 A. -- which were many.

3 Q. Do you distinguish the spontaneous from the
4 planned?

5 A. Would you like to explain that to me? 16:41

6 Q. Certainly. If you have an appointment with
7 somebody, it means you've made a plan.

8 A. Correct.

9 Q. If -- spontaneous means that you've just
10 dropped in like a thief in the night. 16:41

11 A. I don't like that.

12 Q. Well, let me try it again, then.

13 You just made a visit, a spot visit --

14 A. I would -- I might be called --

15 Q. -- or you got a quick telephone call? 16:41

16 A. I might have got a phone call from Jesse. I
17 might have got a phone call from Bill that it might be
18 an idea if we go visit. Yeah, that could have happened.

19 Q. Did you write anything -- understand I haven't
20 had a chance to go over all those documents. 16:41

21 Did you write anything in your notes
22 other than appointments?

23 A. Correct.

24 Q. Huh?

25 A. That's -- that's correct, pretty well. 16:

1 Q. Well --

2 A. I mean, I'm sure there were occasions when --

3 Q. -- wait a minute. We're not communicating.

4 Did you write anything in your notes,
5 calendar, whatever you call it -- what do you call it?

16:42

6 A. Calendar.

7 Q. Calendar.

8 A. Day-Timer.

9 Q. Day-Timer -- other than appointments?

10 A. Yes, I would.

16:42

11 Q. What, for example?

12 A. I might write notes as to the fact that I --
13 if it was an outside meeting, and I may have met with
14 Williamson Printing, I may have made a note, and I may
15 not have.

16:42

16 It would depend on either the severity of
17 the situation and/or the -- the stress or strain that we
18 might be under at the time.

19 Q. Did you ever make what I call "eureka" type
20 notes, notes of good things that have happened, just
21 wanted to make a little note on your journal or
22 Day-Timer, or whatever it is?

16:42

23 A. I'm not sure that I would or not. It's a
24 little bit vague.

25 Q. And I believe you testified you never made

16:43

1 notes of internal conferences?

16

2 A. I wouldn't say "never," but --

3 Q. Never say never, you say, right?

4 A. -- generally -- exactly, exactly -- generally
5 not, no.

16:43

6 Q. Was it just random as to when you did and when
7 you didn't?

8 A. Internally?

9 Q. Random, was it just random?

10 A. No.

16:43

11 Q. Well, then, what would cause you to make a
12 note or not make a note for an inside type of event or
13 meeting?

14 A. I would not normally make notes in my
15 Day-Timer for meetings internally.

16:43

16 Q. But you indicated you might have made some?

17 A. I indicated I might have made some.

18 Q. Uh-huh. And I just wondered if you had any --
19 any rule to distinguish about when you did and when you
20 didn't?

16:44

21 A. No.

22 Q. Okay.

23 A. No rule.

24 Q. Okay. Would you agree with me that Howard
25 DeMoore certainly has the capability to be an inventor?

16:44

1 MR. PINKERTON: Objection to the question 16:44
2 in terms of vagueness, "capability." Got no idea what
3 that means.

4 MR. HARRIS: I'll --

5 MR. PINKERTON: Object to the form of the 16:44
6 question.

7 A. I will admit that he has made an invention.

8 Q. (BY MR. HARRIS) I'm not talking about here,
9 necessarily.

10 A. I just said, "I will admit that he has made an 16:44
11 invention."

12 Q. Would you admit that he had made two?

13 A. I don't know that.

14 Q. Would you be surprised to know that he has 50
15 United States patents, more or less? 16:45

16 A. I would be extremely surprised.

17 Q. That's an impressive number if it's true,
18 isn't it, sir?

19 A. If it's true, it's impressive; but if it's not
20 true, it's not at all impressive. 16:45

21 Q. And if it were 39 or 62, the answer would be
22 the same, wouldn't it?

23 A. It would be the same.

24 Q. Have you ever noticed all of the patents up on
25 the wall? 16:45

1 A. I have indeed. 16

2 Q. What do you think they are?

3 A. I think --

4 Q. And by "up on the wall," so the record's
5 clear, we're talking about out at Printing Research's 16:45
6 facility, out where -- Mr. Bird, I guess you worked out
7 there --

8 A. I did.

9 Q. -- some, and where Mr. DeMoore holds forth and
10 the staff generally. 16:46

11 You have indeed. Would you describe it
12 to me?

13 A. I'd rather not.

14 Q. Please do.

15 A. I'd rather not. 16:46

16 Q. Please do. I ask that you describe it to me.
17 It has to do with inventive capability, and you've given
18 testimony in that area. And as far as I'm concerned,
19 you're required under the law to do so.

20 MR. PINKERTON: Objection to any
21 relevance to "inventive capability" with respect to
22 that, but certainly appropriate to answer the question.

23 To describe the physical appearance?

24 MR. HARRIS: Yeah.

25 THE WITNESS: Oh. 16:4

1 MR. PINKERTON: That's what he's saying.

2 A. There's a wall covered with plaques.

3 Q. (BY MR. HARRIS) Were you aware that those
4 plaques were the front seals of United States patents?

5 A. I'm absolutely aware of that.

16:46

6 MR. PINKERTON: Excuse me.

7 Q. (BY MR. HARRIS) Sir, I'll just put it this
8 way to you. I'm -- I'm wandering in view of that what
9 would cause you to be so surprised about Mr. DeMoore
10 having a large number of patents.

16:47

11 Can you explain?

12 A. The validity of him being the inventor on
13 those patents is what I question.

14 Q. Your notion is, then, that Mr. DeMoore
15 appropriates other people's inventions?

16:47

16 A. Didn't say that.

17 Q. Well, sir, can you explain what you mean?

18 A. If you work for a corporation that assumes and
19 takes the position of getting you to assign every and
20 any idea that you come up with to them and for the owner
21 of that corporation to be included on that invention,
22 then in my opinion, I don't truly regard that person as
23 an inventor because it wasn't his idea.

16:48

24 Q. And it's your belief that that's the situation
25 that prevails on those patents that Mr. DeMoore holds.

16:48

1 Is that right, sir?

16

2 A. I believe that to be true.

3 Q. Uh-huh. And while on such subjects, you very
4 recently -- oh, I didn't finish.

5 What else was said in the conversation
6 with the attorneys that you had at the break?

16:48

7 A. Nothing else.

8 Q. Nothing at all, just about that one reference,
9 and that was all that was said, nothing else.

10 Did you meet with Mr. Pinkerton or
11 Mr. Falk yesterday?

16:49

12 A. Yes, I did.

13 Q. For how long?

14 A. For approximately eight hours.

15 Q. What?

16:49

16 A. Approximately eight hours, nine o'clock
17 through until about five o'clock.

18 Q. And have you met with both of them frequently
19 or -- let me -- have you met with Mr. Falk previously
20 before yesterday?

16:49

21 A. Yes.

22 Q. And when and where and how often?

23 A. I met with Mr. Falk on Sunday for
24 approximately four hours.

25 Q. And before that?

16:

1 A. When the Declaration was made back in whatever 16:49
2 the date, and I'd have to refer to the date of the
3 Declaration.

4 Q. Was that with Mr. Falk?

5 A. That was with Mr. Falk. 16:50

6 Q. And prior to that, had you met with Mr. Falk?

7 A. No.

8 Q. So you had the Sunday meeting with Mr. Falk,
9 and then you had one prior meeting at Declaration time.

10 Would you tell me the circumstances 16:50
11 around which the Supplemental Declaration was made?

12 A. The Declaration was made. I -- I was given
13 the opportunity to review it, review the notes,
14 etcetera. And after reviewing those notes, there were
15 changes that I requested, and those changes were made 16:50
16 and corrections made, which led to the --

17 Q. You didn't have an opportunity to look at
18 those notes in the first instance when you took the
19 first Declaration?

20 A. Oh, yes, but then -- but then they came back 16:51
21 to me, and we -- we went -- I went through them again.

22 Q. As a matter of fact, Mr. Falk pointed out to
23 you some things that you ought to consider, did he not?

24 A. Not that I'm aware of, no.

25 Q. Well -- 16:51

1 A. I don't recall. 16

2 Q. Tell me those that you're not aware of.

3 A. I don't recall.

4 Q. Okay.

5 A. I don't believe that happened, either. 16:51

6 Q. You don't believe it happened, but it could
7 have?

8 A. Anything's possible. You've said it yourself.

9 Q. Well, I agreed with you on that.

10 A. Yes, you did. 16:51

11 Q. How about Mr. Pinkerton? Had you met with him
12 before yesterday?

13 A. I met with him Sunday, also.

14 Q. The same four hours?

15 A. Same four hours. And prior to that, the 16:51
16 Declaration. And prior to that, I believe there was a
17 meeting maybe a month or two prior to that.

18 Q. So you've met many hours with these two
19 lawyers, if you compile them? And I realize "many" is a
20 relative term, so would you tell me how many hours that 16:52
21 you've met with them added up together?

22 A. Oh, guesstimate, probably --

23 Q. Yesterday was 16, was it?

24 MR. PINKERTON: Are you talking about
25 with respect to each of us or total? 16:5

1 MR. HARRIS: No, to each of you put
2 together. I mean, your -- if there's an hour passes,
3 and the three of you are together, well, that is meeting
4 with both of you, and it's okay to treat that as just
5 one hour. But if you're with one of you, that's another
6 hour. And if you're with the other of you, that's
7 another hour.

16:52

16:52

8 MR. PINKERTON: And segregate it in those
9 three ways?

10 A. Well, I'm looking at twenty --

16:52

11 MR. HARRIS: Combination of three things
12 taken two at a time. I don't know.

13 A. Combination, 22.

14 Q. (BY MR. HARRIS) Twenty-two hours. That goes
15 back to the time with Mr. Falk?

16:53

16 A. And John Pinkerton on -- no, the 22 hours in
17 combination with the two. You said they counted as one,
18 so that's 22 hours with the two.

19 Q. They count as one only when they're together.

20 A. Well, I'm agreeing with you.

16:53

21 Q. You're agreeing with me?

22 A. Yeah.

23 Q. Incredible.

24 A. Yes, isn't it?

25 Q. Well, now, would you agree with me that you

16:53

1 weren't happy about the fact that Printing Research
2 brought a lawsuit against you rather recently, were you?

3 A. I wasn't happy, no.

4 Q. And is it fair to say that you weren't happy
5 about your termination, then your working something out
6 with Printing Research, and then, in effect, another
7 termination? Is that fair to say?

8 A. That's very fair to say.

9 Q. Is it fair for me to say that if you had to
10 take your choice, just on the basis of who you like and
11 who you don't like, who would you like to see win this
12 lawsuit?

13 MR. PINKERTON: I'm going to object to
14 that question.

15 MR. HARRIS: You can object to it all day
16 long.

17 A. I have no animosity toward either party,
18 either party. And as far as I'm concerned, as long as
19 the truth prevails, it would be real nice to see.

20 Q. (BY MR. HARRIS) It would be real nice to
21 what?

22 A. See the truth prevail. That's all.

23 Q. And is it fair to say that any time on an
24 equal basis that we need 22 hours or whatever, you have
25 it available?

1 A. I would make it available.

16:54

2 Q. Yeah. And at what rate did you make it
3 available in the case of the other side? How much did
4 you charge them for all of this?

5 A. We charged out of pocket expenses, etcetera,
6 etcetera.

16:55

7 Q. Well, what's the "etcetera, etcetera"? Aren't
8 you charging yourself out as an expert or something?

9 A. I'm charging myself out as a witness in a
10 case.

16:55

11 Q. How much?

12 A. I don't know the relevance of that.

13 Q. Sir, it is relevant, and I insist you answer
14 it. And I don't have the power to enforce that
15 insistence, but the judge does.

16:55

16 MR. PINKERTON: I don't think he knows
17 that. Do you know the -- the question? Do you
18 understand the question?

19 THE WITNESS: I'm not sure I do.

20 MR. HARRIS: Well, maybe we are --

21 MR. PINKERTON: He's asking -- he's
22 asking if you have charged us for the time that you've
23 spent with us.

24 THE WITNESS: Oh.

25 A. No.

16:55

1 Q. (BY MR. HARRIS) Are you going to? 16

2 A. No.

3 Q. Are you going to charge anything if you appear
4 at trial?

5 A. I don't know that. 16:56

6 Q. Okay. It hasn't happened yet?

7 A. It hasn't happened, and I hope it doesn't.

8 Q. Do you intend to come to trial?

9 A. If I'm asked, I'm sure that -- and I'm
10 subpoenaed, I'm sure. 16:56

11 Q. Well, there's nothing legally that makes you
12 come to trial unless you're in Texas. I'll practice
13 that much law with you. So that will be up to you. It
14 will be up to you.

15 I just want to be sure that you're happy 16:56
16 about your answer on the no animosity. I'm not accusing
17 you of holding a grudge, I'm just trying to find out
18 what your feelings are.

19 A. My feelings are, as I've already stated --

20 Q. Okay. 16:56

21 A. -- I have no animosity towards either party.

22 Q. We'll not kick that horse anymore.

23 We're talking about just the truth coming
24 out, right?

25 A. Sure. 16:

1 Q. Did you feel that way about the truth when you 16:57
2 signed the patent application as an inventor?

3 A. Yes.

4 Q. So you thought you were an inventor, then?

5 A. I felt that it was truthful that -- in the 16:57
6 terms which I was asked to sign those and the terms of
7 it being the invention that it was portrayed to me, yes,
8 I thought it was the truth.

9 Q. So you think you ought to be on the patent,
10 then? 16:57

11 A. Not in the way it's being perceived and being
12 portrayed today, no.

13 Q. Whose portrayal is that, sir?

14 A. What I believe is your portrayal.

15 Q. Is it possible that that's a portrayal that 16:58
16 you've had from Williamson's counsel?

17 A. No, not at all.

18 Q. Well, what was it that you thought your
19 contribution was at the time, then?

20 A. My contribution -- you know what? Might I 16:58
21 renege on what I just said? The truth is that at the
22 time, you're right, I -- I didn't feel that I should
23 have been labeled as an inventor, and that is the truth.

24 Q. Well, the truth now --

25 A. It's very difficult -- 16:58

1 Q. -- maybe it's better --

2 A. -- when you're employed --

3 Q. -- maybe it's --

4 A. -- it's difficult when you're employed by
5 someone.

16:59

6 Q. Sure. I'm not after you right now, sir. The
7 truth now is what we were asking for --

8 A. Yes. But I don't have those restrictions now.

9 Q. Yeah.

10 Now, the EZ Coater, as it's been referred
11 to, was not --

16:59

12 A. Might I make one point just because I think
13 it's -- it might be relevant, and I'm not sure of the
14 relevance.

15 Q. I have no idea. Would you let me withdraw the
16 freedom? I will give it to you for the moment.

16:59

17 A. Thank you.

18 Q. Because I'm supposed to ask the questions, and
19 you're supposed to answer them --

20 A. Thank you.

21 Q. But I -- I'll --

22 A. Thank you.

23 Q. -- waive that for a moment.

24 A. There's a gentleman in this room, a Mr. Ron
25 Rendleman, that knows that at the time that I was asked

16:5

1 to come onto the patent that I actually went to him and
2 apologized for the fact that I was being drawn into and
3 onto the patent because I didn't think that I should be
4 on that patent. And for the record, I'd like that to be
5 known.

17:00

6 Q. Well, I -- it is on the record. Thank you.

7 The EZ Coater of about '91 --

8 A. Yes.

9 Q. -- was not anilox-supplied, was it?

10 A. Yes, it was.

17:00

11 Q. It was?

12 A. EZ Coater of '91, yeah.

13 Q. That's your recollection anyway, huh?

14 A. Absolutely. Remember, it's on paper. It

15 wasn't -- it wasn't a machine, but it was certainly

17:00

16 anilox.

17 Q. You're saying on paper it was anilox-supplied,
18 then?

19 A. Uh-huh, correct.

20 Q. And then what is the next thing, the EZB?

17:01

21 A. The EZB, yes, sometime later, but yes.

22 Q. And tell me about the Dahlgren Corporation
23 Rapid [sic], Oxy-Dry, Essex [sic] retractable coaters.

24 As a -- thinking of any one of the four,

25 are any of them made with a Ferris wheel type of a

17:01

1 movement?

17

2 A. None of them are made -- that I'm aware of
3 that are made are made with Ferris wheel.

4 Q. Are -- how many or which of them are made with
5 a circular movement?

17:01

6 A. With a --

7 Q. Semicircular movement.

8 A. There was one made back in the '80s that the
9 company doesn't exist anymore, but they made a circular
10 movement, made by a gentleman called Eric -- his last
11 name escapes me but -- and he moved to Florida. It was
12 probably the first anilox roll coater in the United
13 States, and it was back in about '82, '83.

17:02

14 Q. What happened to the company and the concept?

15 A. The company -- the gentleman -- and eventually
16 I'll remember his name -- The gentleman moved to
17 Florida, but he was getting on in years, and unfortunate
18 for him, someone else took his invention as it was and
19 copied it and was producing it in the marketplace. And
20 he didn't have the wherewithal to fight it.

17:02

17:03

21 And that coater, I believe, is what was
22 the -- essentially, the Dahlgren coater of the early
23 '80s.

24 Q. I'm a little confused now. Did the Dahlgren
25 coater have a semicircular movement?

17:

1 A. No. But it was an anilox roll coater.

17:03

2 Q. Okay. So that was --

3 A. That's where the tie.

4 Q. -- the similarity?

5 A. Yeah. That's where the tie.

17:03

6 Q. All right. All right. Was -- previously, the
7 Dahlgren hadn't had an anilox coater.

8 How about Rapid [sic], did it?

9 A. Rapidac, no.

10 Q. And how about Oxy-Dry?

17:03

11 A. No.

12 Q. And what -- what is the other one, Essex [sic]
13 or what?

14 MR. PINKERTON: Epic.

15 A. Epic.

17:03

16 Q. (BY MR. HARRIS) Epic. Yeah, Epic.

17 A. They had a -- they had a -- same as most of us
18 had, which was an up-down movement on the press.

19 Q. Are you talking about these three-roller
20 configurations?

17:04

21 A. Not in each case, no.

22 Q. Not in each case?

23 A. No.

24 Q. They do it different ways, huh?

25 A. Yes. There was either -- there was the

17:04

1 philosophy of flexo applications, and there was the 17
2 philosophy that ran with three-roll applications.

3 Q. In place of the anilox roller, what was used?

4 A. In place of the anilox roller?

5 Q. Yeah. In place of, instead of the anilox 17:04
6 roller, what did these that did not use an anilox --

7 A. They would use a three-roll type system.

8 Q. That's where the three roller --

9 A. Yes.

10 Q. -- comes from? 17:04

11 A. Yeah.

12 Q. Okay. As to the EZ, '92 or '93, would you
13 tell me those three or four where they were sold and the
14 ultimate fate of each so I can check into them at
15 another sitting? 17:05

16 A. Sure, sure. There was one sold to a
17 corporation out in California whose name escapes me.
18 I'm sorry, but -- Stoughton, Stoughton Printing,
19 S-T-O-U-G-H-T-O-N, and that was on a Heidelberg 72
20 four-color machine. 17:05

21 THE WITNESS: Do you have a problem with
22 that, Howard?

23 A. There was a Heidelberg 102 that went to a
24 corporation in New York City whose name escapes me.
25 That one -- the one in New York City definitely came 17:

1 back.

17:06

2 The one that went to Stoughton Printing
3 was used for about a year, I guess, maybe a little bit
4 more and was -- the press was sold off. And when they
5 sold the press off, they -- they discarded the coater
6 because it didn't have a useful application.

17:06

7 There was one sold here in Dallas in
8 Allen -- in the Dallas area in Allen. And the -- that's
9 the -- Color Dynamics was the name of the company, Color
10 Dynamics. That was on a 102 or a 40-inch Heidelberg. I
11 believe we got that back, too.

17:06

12 There was one went to a company in
13 Dallas, also, Riverside Press, which was on a
14 Heidelberg, and I do believe that that came back.

15 Other than that, it's a long time ago.
16 I'd have to go through notes. Well, I can't go through
17 notes because I don't have notes of that nature.

17:07

18 Q. (BY MR. HARRIS) Would you be shocked if there
19 were ten or more that were sold?

20 A. I would be shocked, yeah. I wouldn't be
21 shocked if that ten or more weren't working anymore.

17:07

22 Q. What was the lawsuit about with Printing
23 Research?

24 A. I'm not at liberty to disclose that to you.
25 That was part of the settlement.

17:07

1 Q. I have to think about that a minute. We -- 17:
2 for whatever it's worth, we'll look at that, if we have
3 a confidentiality agreement here.

4 A. We do.

5 Q. And we do. Between all of us is what I wanted 17:08
6 to explain so you'd know that. Mr. Pinkerton will
7 verify that.

8 MR. PINKERTON: Oh, sure. I mean parts
9 of the record can be designated as confidential.

10 I understand what he's saying is that his 17:08
11 settlement's confidential, and he has a contractual
12 obligation with Printing Research not to disclose the
13 terms of the settlement.

14 MR. HARRIS: Well, if Printing Research's
15 counsel asks him in accordance with that agreement, 17:08
16 which I hereby designate as confidential, then he can
17 say it.

18 THE WITNESS: Didn't Howard DeMoore sign
19 the same confidentiality agreement?

20 MR. HARRIS: Maybe I ought to ask -- 17:09
21 didn't what?

22 THE WITNESS: Didn't Mr. DeMoore sign the
23 same confidentiality agreement not to discuss it?

24 MR. HARRIS: Yeah.

25 MR. PINKERTON: Do you mean in your 17:10

1 settlement?

17:09

2 THE WITNESS: Yes.

3 MR. PINKERTON: Is that -- I don't know.

4 MR. HARRIS: I don't know. I wasn't

5 their lawyer.

17:09

6 THE WITNESS: Well, he was.

7 MR. HARRIS: Huh?

8 THE WITNESS: Well, he did.

9 MR. PINKERTON: Are you saying on the

10 record that you will waive the requirement in the

17:09

11 settlement agreement that that not be disclosed?

12 MR. HARRIS: Only if it goes only to
13 those that are subject to the agreement here, and it's
14 treated as a confidence under the Protective Order in
15 this case.

17:09

16 MR. PINKERTON: So --

17 MR. HARRIS: That's what I'm saying, but
18 I need to -- even that, I need to check.

19 MR. PINKERTON: Okay.

20 MR. HARRIS: And you may, you know, have
21 some --

17:09

22 THE WITNESS: And I will check with my
23 lawyers. I will not discuss it without checking it with
24 my lawyers.

25 MR. HARRIS: Well, let me see if I -- we

17:09

1 better take -- I hate to, but we're going to have to 17
2 take a break. This could keep us from having to make a
3 trip to New York or run real, real late tonight or
4 having to come back or something.

5 So let me talk a minute with them, see 17:10
6 what they feel like, then you can be -- if they feel,
7 "Hell, Bill, we don't" -- pardon me, record -- "we don't"
8 care about it one way or another."

9 THE WITNESS: But I do.

10 MR. PINKERTON: Care about what, Bill? 17:10
11 I'm sorry, you said you don't care about it.

12 MR. HARRIS: He says he cares.

13 MR. PINKERTON: Well, he's got a
14 contractual obligation, and he's --

15 MR. HARRIS: Don't lecture me. 17:10

16 MR. PINKERTON: I'm not. I'm just
17 telling you --

18 MR. HARRIS: Let me go talk here, and
19 then I'll find out what I want to --

20 MR. PINKERTON: Yeah, you need to clear
21 it with him. If they want to --

22 MR. HARRIS: Before I have -- to find out
23 whether I have anything to push or not.

24 MR. PINKERTON: Yeah, if they want to
25 waive it, then that's fine, and that can be related to 17:

1 the witness.

17:10

2 MR. HARRIS: Well, I'm not sure that's
3 fine with this gentleman, all right?

4 THE WITNESS: I'm not sure it's fine,
5 either.

17:10

6 MR. HARRIS: But that's step one, is to
7 go right there. So let's go.

8 THE VIDEOGRAPHER: The time is 5:11 p.m.
9 We're off the record.

10 (Recess from 5:11 p.m. to 5:28 p.m.)

17:28

11 THE VIDEOGRAPHER: The time is 5:28 p.m.
12 We're on the record.

13 Q. (BY MR. HARRIS) Sir, we had discussed the
14 matter that was at issue, and that being the terms or
15 settlement or how the last suit came out between
16 Printing Research and yourself?

17:28

17 A. Uh-huh.

18 Q. And we have concluded that we don't need to
19 bother you with that if you don't like it. We won't ask
20 you. I'll withdraw the question.

17:29

21 Now, if the in the meantime you've
22 decided you're dying to tell us, you can go ahead,
23 but -- so it's an open deal. It's up to you. As far as
24 I'm concerned, the question is withdrawn.

25 A. Thank you. I accept.

17:29

1 (Sotto voce discussion.) 17

2 Q. (BY MR. HARRIS) Did I hear you correctly,
3 sir, say that if you are going to use a flexographic
4 step and do it in anything like a successful manner,
5 that anybody would know you had to do it upstream if 17:30
6 you're going to do it in a single pass?

7 MR. PINKERTON: I'm going to object to
8 the characterization of the testimony, Bill. It's --

9 MR. HARRIS: I asked if I understood him
10 to say -- all he has to say is, "No." 17:31

11 Q. (BY MR. HARRIS) If your answer's "no," then
12 we'll go back later and see what you said the first
13 time.

14 A. No.

15 Q. Okay. So then it's your testimony -- let me 17:31
16 try this: You probably know what I'm mixed up about,
17 then, if you think I'm mixed up.

18 I understood you to say if you are going
19 to try to do an overprint of any kind with a single-pass
20 line that the flexographic station will have to be 17:31
21 upstream.

22 A. That's evident.

23 Q. So that anybody would know it if that's what
24 you were trying to do, right?

25 A. That's evident, yes. 17:

1 Q. Okay. About rack-back, it has other names,
2 does it not?

17:32

3 A. Yes.

4 Q. Pull-back or jerk-back or whatever. Anyway,
5 the idea is just to get it out of the way, huh?

17:32

6 A. Correct.

7 Q. But most of the rack-backs didn't get out of
8 the way by putting them up, most of them just came back
9 or to a side, perhaps; is that true? I understand some
10 went up.

17:32

11 A. I would say that more went up than -- than
12 went to the side or just backed off.

13 Q. And those that went up -- motion patterns
14 weren't as critical when you were putting flexo on the
15 last unit, were they?

17:33

16 A. Patents?

17 Q. No. Motion patterns of the coater were not as
18 important or significant when the coater had been
19 mounted on the last unit?

20 A. They weren't as critical, correct.

17:33

21 Q. And did Williamson know that the standard
22 rack-back -- you -- you testified what you thought
23 Williamson had said and done regarding some ideas,
24 right?

25 A. Correct.

17:33

1 Q. And that -- pursuant to that testimony, you
2 talked about rack-back with anilax [sic] -- anilox
3 rollers?

4 A. Uh-huh.

5 Q. Were they aware of the fact that you couldn't
6 take the standard off the shelf, rack-back, and make it
7 work interstation?

8 A. I don't believe that statement to be true.

9 Q. You can make it work, then, I take it?

10 A. Yes, absolutely.

11 Q. Why did we go to all the trouble with Ferris
12 wheel movements and nonsense like that?

13 A. Beats me.

14 Q. Well, if I suggest --

15 A. It was -- it was felt that it was a better
16 method.

17 Q. If I suggested to you it had to do with
18 safety, it had to do with obstructions, it had to do
19 with things of that nature if you used some other
20 methods, would you agree that's possible?

21 A. I would agree that it's possible, but I don't
22 think that was the case.

23 Q. Why didn't they do their own rack-back in
24 development?

25 A. Who?

1 Q. Williamson. They had all this big idea, why
2 did they want to share it with you?

17:34

3 A. Because they're a printer, and we're an
4 equipment manufacturer.

5 Q. They don't invent things?

6 A. Yes, they do. Of course.

7 Q. Well, you said they're --

8 A. But I invented things, but I'm not an
9 engineer.

10 Q. -- a printer. Do they invent printing things,
11 is that it?

17:34

12 A. Excuse me?

13 Q. They invent printing things, but not
14 mechanical things?

15 A. Correct.

17:35

16 Q. So if you get over to the area of the
17 mechanics, you don't expect to see much from
18 Williamson --

19 A. Correct.

20 Q. -- since they're principally a printer. But
21 if you start talking about inks or something like that,
22 that might be a different story; is that true?

17:35

23 A. Processes, etcetera, yes.

24 Q. Yeah. Separations and so on?

25 A. Correct.

17:35

1 Q. So it was dead clear that they weren't going 17
2 to develop their own, they were going to get it
3 somewhere, their own rack-back or whatever it was?

4 A. They were going to purchase it from somewhere,
5 yes. 17:35

6 Q. And you thought at the time that just ordinary
7 rack-back would work; is that right?

8 A. I thought that a rack-back flexo coater would
9 work, yes.

10 Q. But it wouldn't interstation very well, huh? 17:36

11 A. I disagree with that statement.

12 Q. Why did you go forward with it?

13 A. We went forward with the motion that was
14 chosen, in my opinion, because there was thought to be
15 prior art in another method that I would have thought 17:36
16 was actually a better method.

17 Q. Well, tell us --

18 A. That I personally believe was a better method.

19 Q. Tell us about this prior art.

20 A. Which was a vertical motion and would be 17:36
21 allied to that print station. And you would drive up
22 and down on that print station and over the top onto
23 that print station.

24 Q. And then up?

25 A. Up and then out of the way, but that would be 17:36

1 more costly, and there was prior art.

17:36

2 Q. And that was an ordinary rack-back. You had
3 one in the shop, right?

4 A. Not -- no, no. I'm talking vertical. I
5 didn't say at an angle vertical. This was truly
6 vertical, a 90 degree angle to the --

17:36

7 Q. Do you call that a rack-back?

8 A. Of course. And you -- and you -- as you've
9 described yourself, as long as it moves away from the
10 press, whatever the motion is, it's a rack-back. You
11 said that.

17:37

12 Q. I've said a lot of things that were mistaken.
13 But it's been a, usually, good faith mistake.

14 A. I'm sure that's true.

15 Q. When was it that you understood that Baker
16 met, I guess it was, Bill Davis and -- I don't
17 remember -- and Jesse in Atlanta?

17:37

18 A. In Atlanta? July.

19 Q. When in July?

20 A. I'd have to go back to my testimony,
21 unfortunately.

17:38

22 Q. How did you research that?

23 A. How did I research that?

24 Q. Yes, sir. How did you determine it? Now
25 you're going to a secondary reference.

17:38

1 A. Yes, that's -- that's a good point. 17:

2 Q. What's your primary reference?

3 A. That's -- that's a good point. I'd have to
4 think about that. (Witness reviews documents.)

5 It was -- it was July '94 that it 17:38
6 occurred.

7 Q. Are you looking at paragraph 10?

8 A. I'm looking at paragraph 10.

9 Q. What?

10 A. I'm looking at paragraph 10, yes. 17:39

11 Q. And what does it say about the day? What does
12 this secondary reference say about the day?

13 A. It says that "after conversations with Steve
14 Baker." And he --

15 Q. What does it say about the date, sir? 17:39

16 A. It says, "upon his return in July 1994."

17 Q. Does it say anything else about it?

18 A. "From Atlanta, Georgia."

19 Q. Uh-huh. Does it say anything else about it?

20 A. "Of a meeting between Steve Baker, Jesse
21 Williamson, and Bill Davis."

22 Q. Maybe I better look at it. See if I can find
23 a copy. Here's one. (Counsel reviews documents.)

24 (Sotto voce discussion.)

25 Q. (BY MR. HARRIS) Well, thank you for what 17:4

1 you've told me, an interpretation of what you have in
2 your Declaration.

17:41

3 Can you tell me where you got the
4 information?

5 A. Well, it may well be in my calendar,
6 Day-Timer. It may be. And I don't -- okay, I
7 understand. It -- it may be through recollection, but I
8 know the --

17:41

9 Q. You mean past recollection now gone?

10 A. Yes. I'd have to say so.

17:42

11 Q. It wasn't very long past, was it? What, a few
12 months?

13 A. True.

14 Q. Okay. Did you talk to Baker about it?

15 A. No.

17:42

16 Q. Would you accept the date that Baker gave if
17 it was somewhere close along in there?

18 A. Oh, sure.

19 Q. So this date is the best you can remember a
20 date, and you don't have a document to go to to
21 establish the date; is that the case?

17:42

22 A. That's the case. But it can be -- I'm sure it
23 can be established.

24 Q. Maybe an expense record could be located or
25 something like that?

17:42

1 A. Yeah, something like that would be able to be 17:
2 found, I'm sure.

3 Actually, probably Williamson Printing
4 could confirm what date that was, too.

5 Q. Do what? 17:43

6 A. Probably Williamson Printing could confirm the
7 date that was, also.

8 Q. Yeah, I imagine they could.

9 MR. JESSE WILLIAMSON: They can.

10 Q. (BY MR. HARRIS) We kind of like -- not that 17:43
11 we question their honesty, but we kind of like to have
12 an independent check if we can get one. If we can't get
13 one, well, then it's a good number, I guess.

14 So I guess the question is if you're
15 thinking about looking it up for us, when you were in 17:43
16 Atlanta in the summer of '94.

17 MR. JERRY WILLIAMSON: I guess Printing
18 Research has probably got the record, too. They sent a
19 man over there. They've got an expense record.

20 MR. HARRIS: I'm talking the this man 17:44
21 down here now, though. And we might wind up handling it
22 a different way through your records or the records we
23 can find. I don't go from memories.

24 Q. (BY MR. HARRIS) I trust that Printing
25 Research nor Williamson has supplied you with anything 17:4

1 to determine that date?

17:44

2 A. No. You are absolutely correct.

3 And since --

4 Q. To what extent did you have help -- and I'm
5 just talking about editorial help to begin with here --
6 did you have help in the writing of the affidavit you
7 have? Did you have help?

17:44

8 A. No.

9 Q. None at all, not even editorial help?

10 A. It depends on what you mean by "editorial
11 help." I don't suppose I understand, really, what
12 you're saying with "editorial help."

17:45

13 Q. Well, did Bobby Falk type it all up for you
14 when it was over? I mean, really, what -- how did --
15 how did it get done?

17:45

16 A. I was interviewed, and I was asked if this is
17 what I was -- was this a true representation of what I
18 said.

19 Q. And you were asked that, what, with the draft
20 back in Connecticut?

17:45

21 A. I was asked that on the day, and then that
22 was -- I was asked that on the day. And then -- and
23 then that was faxed to me in Connecticut. And I
24 subsequently made changes where I thought they were
25 necessary and/or corrections, etcetera, and --

17:45

1 Q. Do you have any of the drafts? 17

2 A. No. No.

3 Q. I'm not going to take the time on it now. We
4 have one draft here, but it's very, very nitpickish, the
5 changes.. And we might yet find one where the changes
6 are enormous, but that's -- 17:46

7 A. I don't think so.

8 Q. -- what I'm looking for.

9 A. I don't think so.

10 Q. So it's a fact that the lawyers did some of
11 language picking and whatnot, but you felt that it
12 reflected what you had told them, and that's the reason
13 you were satisfied? 17:46

14 A. Absolutely.

15 Q. Uh-huh. This business arrangement there was
16 testimony about, did it come through a firm -- a firm
17 contract, or was it negotiations? 17:46

18 A. Would you mind repeating that? I didn't
19 understand your question.

20 Q. You testified some about a business
21 relation -- 17:47

22 A. With?

23 Q. -- between the companies in maybe February --

24 A. Between?

25 Q. -- of '95. And the companies, I only really 17:

1 know two involved, but one of them is Williamson Company
2 the other one is Printing Research.

17:47

3 A. Okay.

4 Q. My question: Was it, as you understood it, a
5 firm agreement, or was it proposals?

17:47

6 A. It was proposals.

7 Q. And there never was really an agreements as
8 such, then?

9 A. No, there was never a firm agreement, no.

10 Q. And I think it's a detail, would you be
11 surprised if the first of the three interstage [sic]
12 coaters drew zero dollars? I know you spoke of a coater
13 that was placed, a short coater?

17:47

14 A. Short-armed coater.

15 Q. Yeah. You spoke of it, and you said it was a
16 freebie, and it may have been. I'm moving away from it
17 and on to the other three you testified about, which
18 were supposed to be interstage [sic] coaters.

17:48

19 And I just simply ask you if you'd be
20 surprised or if it refreshes your recollection to know
21 that the first of those three was a freebie?

17:48

22 A. I wouldn't be surprised, but --

23 Q. Okay.

24 A. -- I don't recall. But I wouldn't be
25 surprised. There had been an awful lot of problems in

17:48

1 it.

17

2 Q. What?

3 A. There had been an awful lot of problems at
4 Williamson Printing.

5 Q. Did you know that Williamson was -- or do you
6 recall, because your own correspondence -- do you recall
7 that Williamson was seeking to negotiate for an
8 exclusive of PRI's contribution, an exclusive for, first
9 it asked, I think for, 18 months, and then there was
10 some jockeying around on how much it might be, and then
11 negotiation?

17:49

17:49

12 MR. PINKERTON: Objection --

13 A. We --

14 MR. PINKERTON: -- to the form of the
15 question. Leading and assuming a bunch of facts not in
16 evidence. Go ahead.

17:49

17 A. I was aware that we, Printing Research, was
18 looking for an agreement of that nature, yes.

19 Q. (BY MR. HARRIS) That who was?

20 A. That we, Printing Research, was looking for an
21 agreement of that nature.

17:49

22 Q. Would you be surprised if it were one that
23 Williamson were proposing at 18 months or --

24 A. I was a --

25 Q. -- exclusive?

17:50

1 A. -- party to all those negotiations, so -- 17:50

2 Q. You what?

3 A. I was party to all those negotiations --

4 Q. Yeah.

5 A. -- with Jerry Williamson -- 17:50

6 Q. Uh-huh.

7 A. -- and Jesse Williamson, so of course I was
8 aware.

9 Q. So what?

10 A. Of course I was aware. 17:50

11 Q. (Indicating.)

12 MR. PINKERTON: Of course he was aware.

13 A. Of course I was aware.

14 Q. (BY MR. HARRIS) Okay. You were aware that
15 Williamson was asking for 18 months exclusive? 17:50

16 A. Yes.

17 Q. Would you tell me why Williamson would need an
18 exclusive?

19 A. Because they considered the product and the --
20 and the -- the product to be a proprietary product, I
21 suppose. 17:50

22 Q. For who?

23 A. For Williamson at that time.

24 Q. For Williamson --

25 A. Uh-huh. 17:51

1 Q. -- why do they need a proprietary -- to 17:
2 protect their own proprietary right, why do they need an
3 exclusive on anything?

4 A. Because they had -- they had a march on the
5 marketplace, and -- and they were giving the time and 17:51
6 the -- and the money necessary to -- to involve
7 themselves [sic] in such an enterprise.

8 Q. If it was -- let's put it this way --

9 A. How gain --

10 Q. -- if it was their invention, why in the world 17:51
11 would they need anybody else to give them an exclusive
12 on anything?

13 MR. PINKERTON: Object to form.

14 A. We were talking about a piece of equipment.
15 We were not talking -- 17:51

16 Q. (BY MR. HARRIS) Well, you tell me what you're
17 talking about, and I'd love to hear your answer.

18 A. We were talking about a piece of equipment and
19 not about a process.

20 Q. So you're telling me that it's because you 17:51
21 interpret the dealings as being strictly around the
22 equipment that was being supplied --

23 A. Correct.

24 Q. -- by Printing Research?

25 How about the interstage [sic] heaters, 17:51

1 were they involved, too?

17:52

2 A. Of course.

3 Q. Were they involved in the dealings?

4 MR. PINKERTON: Involved in what
5 dealings? Object to the form of the question.

17:52

6 MR. HARRIS: The dealings where
7 Williamson was going to get an 18-month -- or wanted an
8 18-month exclusive.

9 A. They had already purchased the -- the
10 high-velocity hot air driers. And since it turned out
11 in the end that they really didn't work, I guess that's
12 almost a moot point, but -- but they were in, as I
13 recall, part of that same exclusivity.

17:52

14 Q. (BY MR. HARRIS) However it was regarded, you
15 felt exclusivity went to -- basically went to hardware?

17:52

16 A. Absolutely.

17 Q. And so therefore, the hardware, you assumed
18 the rights to be in Printing Research. Is that true,
19 sir?

20 A. I regarded the hardware, the Ferris wheel
21 concept, as being a -- a Printing Research piece of --
22 piece of hardware, yes, correct.

17:53

23 Q. All right. Do you have a recollection in the
24 summer or the early fall, perhaps, but I believe the
25 summer, of nineteen hundred and ninety-four taking down

17:53

1 some gold sheet to Williamson? 17

2 A. Yes, I do.

3 Q. And do you recall them being pleased with the
4 product?

5 MR. PINKERTON: At what period of time
6 are you talking about? 17:54

7 THE WITNESS: Summer of '94.

8 MR. PINKERTON: Summer of '94.

9 MR. HARRIS: Yeah.

10 Q. (BY MR. HARRIS) Do you recall them being
11 pleased with the product? 17:54

12 A. Yes, I do.

13 (Sotto voce discussion.)

14 Q. (BY MR. HARRIS) I understand you knew they
15 were going to file a patent application, "they" being
16 the Williamsons? 17:54

17 A. Yes.

18 Q. We can find no record anywhere that that was
19 reported back. I heard your testimony --

20 A. Uh-huh. 17:55

21 Q. -- and you said you told Steve Garner.

22 A. Yes.

23 Q. You didn't say you told anybody else.

24 A. No, I didn't say that I told anybody else.

25 Q. Now, who did you tell, if anyone, at 17:56

1 Williamson that we filed an application, "we" being
2 Printing Research?

17:55

3 MR. PINKERTON: That's --

4 A. Nobody.

5 MR. PINKERTON: -- objection to the form
6 of the question. Assumes something not in evidence, but
7 go ahead.

17:55

8 A. Nobody.

9 Q. (BY MR. HARRIS) You never told them anything
10 about it?

17:55

11 A. No. But then, in my opinion, the two patent
12 applications were totally divorce of each other.

13 Q. Sir, I did not ask you that -- for your
14 opinion on that. That's strictly volunteered. I asked
15 you simply if you told them about the filing of the
16 application.

17:55

17 A. And I volunteered an answer.

18 Q. And you said, "No," right?

19 A. I said, "No."

20 Q. Okay. And you're sure?

17:56

21 A. I'm sure.

22 Q. Okay.

23 A. As one can be.

24 Q. As -- as I recall your -- your testimony,
25 after February, there wasn't much. February of '95. I

17:56

1 may be remembering wrong. You just testified, and it 17
2 seemed that way to me.

3 Was that the end of most of the things
4 you noted or recall?

5 A. It was, I guess, the end of what was relevant 17:57
6 to that which we're talking about and -- and discussions
7 relative to this particular product.

8 We ran into some serious, serious
9 problems with that product at Williamson's. As we did
10 with all our products at Williamson's. 17:57

11 Q. Sir, were there nothing -- no other things
12 that happened, other troubles with the product, after
13 February of nineteen hundred and ninety-five?

14 A. Like I said, there was -- there were countless
15 problems that we -- we were never able to make the 17:57
16 coater work satisfactorily, certainly not to work in the
17 manner in which it was designed to work.

18 Q. Is the coater -- I gather the coater's not
19 being used today; is that true?

20 A. I have no idea. 17:58

21 Q. The last time you saw it out at Williamson was
22 when you were with the company, with Printing Research?

23 A. Right.

24 Q. So it could be used today and maybe not, huh,
25 you don't know? 17:59

1 A. It could be and it -- maybe not.

17:58

2 Q. What's the earliest that you knew that
3 Rendleman was working on the creation of interstation
4 coaters, the earliest that you knew that he was working
5 on such an interstation coater of whatever form?

17:58

6 A. It would have to be late '94.

7 Q. Would it surprise you if it was as early as --
8 the actual work was as early as early December?

9 A. Early December '94?

10 Q. Yeah.

17:59

11 A. No, it wouldn't surprise me.

12 Q. Did you not review drawings at some time or
13 another or see drawings some time or another that
14 Rendleman was working on that really was on a path?

15 A. Was on a --

17:59

16 Q. On a path toward the coater?

17 A. Ron actually used to post them up on his -- up
18 on his wall, so yeah, in his office.

19 Q. You did see there were such drawings, didn't
20 you?

18:00

21 A. Oh, yes.

22 Q. So to the -- and when there were such
23 drawings, if you will think, at least in December, did
24 you not notice that they were made around the two
25 stations as interstations showing the coater in between?

18:00

1 A. No. Because I don't think that they were at
2 that stage.

3 Q. Then you would be surprised if they were,
4 right?

5 A. I would be very surprised if they were.

6 Q. And it would indicate that you can be wrong,
7 wouldn't it?

8 A. Oh, absolutely can be wrong.

9 Q. Okay. Do you know anything about a
10 nondisclosure agreement regarding the interstation
11 coater that Williamson signed?

12 MR. PINKERTON: Once again, objection.
13 Assumes something totally not in evidence.

14 MR. HARRIS: It's a question.

15 MR. PINKERTON: Well, you --

16 MR. HARRIS: It doesn't say he did or he
17 didn't --

18 MR. PINKERTON: It assumes --

19 MR. HARRIS: -- does he know about it?

20 MR. PINKERTON: It assumes that there's
21 some signed writing and then you're asking him about a
22 signed writing.

23 MR. HARRIS: Well, you're just wrong.

24 MR. PINKERTON: I am?

25 MR. HARRIS: Yes.

1 MR. PINKERTON: Okay. I'm right as far
2 as I'm concerned. 18:01

3 MR. HARRIS: Well, you go ahead and make
4 your --

5 MR. PINKERTON: I just did -- 18:01

6 MR. HARRIS: -- objection.

7 MR. PINKERTON: -- objected to the
8 question. That's totally improper. That's like, you
9 know, "When did you stop beating your wife?"

10 MR. HARRIS: It's not at all like that. 18:01

11 MR. PINKERTON: It isn't?

12 MR. HARRIS: Surely, Mr. --

13 MR. PINKERTON: It isn't?

14 MR. HARRIS: -- yeah. It's not at all
15 like that. 18:01

16 MR. PINKERTON: I disagree.

17 MR. HARRIS: That's called --

18 MR. PINKERTON: I disagree.

19 MR. HARRIS: -- a misleading -- that's
20 called a misleading question. 18:02

21 MR. PINKERTON: We disagree. I think you
22 were probably into that, but why don't you move on?

23 MR. HARRIS: I'm not going to move on. I
24 want an answer.

25 MR. PINKERTON: That's fine, you know. 18:02

1 I've objected to the question.

18

2 MR. HARRIS: Okay.

3 A. Would you ask it again?

4 Q. (BY MR. HARRIS) I don't know.

5 Are you aware of any agreement, signed or
6 unsigned, involving nondisclosure of the interstation
7 coater as -- between Williamson and Printing Research?

18:02

8 A. No, I am not aware.

9 Q. Was there talk about such an agreement?

10 A. I can't recall.

18:03

11 Q. Was Terry a Terry Britton?

12 A. Was Terry Britton what?

13 Q. You said Terry was present at something or
14 another. Terry Britton, isn't it?

15 A. There is a Terry Britton, yes.

18:03

16 Q. Isn't that the Terry you talked about earlier?

17 A. Yes. He's the press -- he was the press
18 operator.

19 Q. And he was operating the test at the
20 Williamson Printing that took place toward the end of
21 the year and not anyone from Williamson, was he not?

18:03

22 A. Oh, absolutely.

23 Q. I'm talking about --

24 A. Absolutely, yes.

25 Q. Yeah. He --

18:03

1 A. He ran -- he ran the press on every test, yes.

18:03

2 Q. Well, now, I'm talking -- I'm talking about
3 the -- they called it a test or whatever that was run at
4 Williamson and that was run toward the end of 1995.

5 And do you know --

18:04

6 MR. PINKERTON: I don't think he knows
7 anything about it.

8 Q. (BY MR. HARRIS) -- the test I'm talking
9 about?

10 A. Oh, I -- actually, I think I do --

18:04

11 Q. I know -- I know something --

12 A. -- yes, I do --

13 Q. -- different and all --

14 A. -- oh, yes, I do. Yes, I do. Yes, I do. If
15 you're referring to the calendar, which I think may have
16 been '95, then, yes, I do.

18:04

17 Q. "Yes," you do what?

18 A. Recall that Terry Britton was at that test.

19 Q. And Ron Rendleman was at the test?

20 A. I think Ron was pretty well present at any
21 test, at everything that ever ran at Williamson to try
22 and make the coater work.

18:04

23 Q. And Ron -- by the direction of Ron, it was run
24 by Terry. And the "it" I'm talking about is the
25 interstation coater.

18:04

1 Do you have any quarrel with that?

18:

2 A. No.

3 Q. Is that true?

4 A. I can't swear to the dates, but, yes, I
5 believe that happened.

18:05

6 Q. And I believe you testified you're aware the
7 Williamson 976 is prepress and has nothing to do with
8 flex [sic] litho in-line?

9 MR. PINKERTON: The "976" being -- can
10 you identify the exhibit, please?

18:05

11 MR. HARRIS: You like to call it WIMS.

12 MR. PINKERTON: Okay the WIMS. He's
13 asking you about the WIMS.

14 THE WITNESS: WIMS 1?

15 MR. HARRIS: I can find the number here,
16 if you like --

18:05

17 MR. PINKERTON: That's --

18 THE WITNESS: That's okay.

19 MR. HARRIS: -- it just takes --

20 MR. PINKERTON: -- I think he's clarified
21 on it now.

18:05

22 MR. HARRIS: -- time.

23 MR. PINKERTON: He's clarified on it now.

24 MR. HARRIS: All right.

25 A. Would you ask the question again, though?

18:

1 Q. (BY MR. HARRIS) Huh?

2 A. Just because I can't remember the question.
3 I've got a real short memory.

4 Q. Sure. It gets pretty long sometimes.

5 THE WITNESS: You know, they say short
6 memory goes real quick when you get my age but the long
7 stays.

8 MR. HARRIS: I don't know. I'm such a
9 young fellow.

10 MR. PINKERTON: Tami, would you read that
11 question back or --

12 THE REPORTER: Yes, sir.

13 (Record read by reporter.)

14 A. I don't strictly agree with that, but -- but
15 it certainly doesn't include flexo/litho.

16 Q. (BY MR. HARRIS) What?

17 A. I would agree that it doesn't include
18 flexo/litho but --

19 Q. Well, it is altogether prepress, isn't it?

20 A. It's very much prepress, but there's also the
21 actual process, which is to apply a metallic in-line as
22 part of that.

23 Q. There's not a word in the patent that suggests
24 anything other than prepress, though, is there?

25 A. It's the --

18:05

18:06

18:06

18:07

1 Q. I'm not talking about common sense here. 18:

2 I'm --

3 A. Well, I think --

4 Q. -- talking about what's in the patent.

5 A. I think it talks about the litho process, yes. 18:07

6 Q. I read it.

7 MR. PINKERTON: Are you testifying,
8 Counsel, or do you want him to testify?

9 MR. HARRIS: Well, I just thought the
10 witness ought to know he's making a mistake. 18:07

11 THE WITNESS: Well, if I am --

12 MR. PINKERTON: It's obviously he -- that
13 you don't agree with him, but this is his testimony and
14 not yours.

15 THE WITNESS: If I am, I apologize, but I
16 thought I read litho in there. 18:07

17 Q. (BY MR. HARRIS) Go back and read it again.

18 A. I should read it again.

19 MR. PINKERTON: What he sees as someone
20 with knowledge in the art might be totally different
21 than you. 18:07

22 MR. HARRIS: "Someone with knowledge in
23 the art"? Oh, someone in the knowledge in the art would
24 know to do something with it. That's not the question.
25 Does four corners have it? That's the question. 18:1

1 Q. (BY MR. HARRIS) Is it true that flexo/litho 18:08
2 two-patent [sic] printing has been performed by printers
3 for years?

4 A. Sorry. Say that again.

5 Q. Is it true that flexo/litho two-pass printing 18:08
6 has been performed by printers for years?

7 MR. PINKERTON: Objection --

8 A. No, it's not true.

9 MR. PINKERTON: -- to form.

10 A. To my knowledge, it's not true. 18:08

11 Q. (BY MR. HARRIS) How -- how far back do you
12 think it goes?

13 A. Well, I've been in the business 40 years, as
14 we've said. I don't --

15 Q. That's two-pass we're talking about. 18:08

16 A. Yeah, but I -- I'd like to know where these
17 flexo/litho applications are that you're referring to,
18 two-pass or otherwise.

19 Q. Oh, okay. Well, that's interesting to me. I
20 thought you said -- 18:08

21 A. Very interesting to me.

22 Q. Huh? I thought --

23 A. Very interesting to me.

24 Q. -- that you said that was old stuff?

25 A. I don't recall saying that it was "old stuff." 18:09

1 Q. Again, by two-pass, we're talking about, for 18.
2 example, placing it on the last station or using a
3 dedicated station.

4 A. Yes.

5 Q. And then we're talking about taking that 18:09
6 product and running it through somewhere to overprint.

7 A. No, that's not been done for years, no.

8 Q. That's what?

9 A. That's not been done for years to my
10 knowledge, no. 18:09

11 Q. Then it -- you had never heard of it before
12 when? Before Rexham or about that time or what?

13 A. Rexham, as I've explained, were not using it
14 to overprint.

15 Q. Well, that's what you've explained, yes. 18:09

16 A. And that's what I've explained, and we beg to
17 differ.

18 Q. Yes, we do. I --

19 A. And I'm sure your better friendship and
20 knowledge of John Lapomarde would prove that to be the 18:10
21 case in your case.

22 But in truth, that was never practiced by
23 them, that I am aware of, and was never explained to me
24 that it would be practiced by them.

25 Q. I'd like to spend a little bit of time now on 18:11

1 some of the things that have appeared in your
2 Declaration. There was a little testimony about it.

18:11

3 Sir, you have testified you believe
4 that -- well, you haven't testified, I guess, really.
5 It's a Declaration.

18:12

6 So you have sworn, then, you believe that
7 "Bill Davis and Jesse Williamson are the first true and
8 correct inventors of the claimed invention of the 363
9 Patent as well as on the subject matter of the reissued
10 claims."

18:12

11 How long did you spend on those reissue
12 claims?

13 A. Scanned them.

14 Q. What? Scanned?

15 A. Scanned them, yes.

18:12

16 Q. Scanned them. Did you tell me that you didn't
17 consider yourself an expert on claims?

18 A. That's correct.

19 Q. Can you interpret claims?

20 A. Not as well as you, I'm sure.

18:13

21 Q. Well, if I give you one now, would you try to
22 interpret it?

23 A. I'd do my best for you.

24 Q. You'd try?

25 A. I'd try for you.

18:13

1 Q. Well, I may -- I may come back in a minute
2 with one. Let's see where we go.

18:

3 So you think you have a hand on all of
4 the reissue claims and all of the claims in the 363
5 Patent; is that right?

18:13

6 A. I think I've got a fairly good idea, yes.

7 Q. Would you agree with me that the claims in the
8 363 Patent that's apart from the reissue are such that
9 they read on only the concept, broadly stated, of flexo
10 followed by litho in a one-line one-pass operation?

18:13

11 Now, let me put it another way. There's
12 not a one of those claims represented to you that has
13 anything to do whatsoever with the mechanics. You could
14 have dedicated stations.

15 Do you agree with me that every one of
16 those claims could be such that it has a dedicated flexo
17 station?

18:14

18 A. I think I would agree with that.

19 Q. And --

20 A. Remember, now, I'm not an expert.

18:14

21 Q. Tell me -- and so tell me whether that's true
22 of the reissue claims or not.

23 A. I -- I can't tell you without looking at them.

24 MR. HARRIS: Got the reissue claims with
25 you, Mr. Falk?

18:

1 MR. PINKERTON: That -- that'll speak for
2 themselves, Bill. I don't think you need them out and
3 have him look at them --

18:14

4 MR. HARRIS: No. He's -- he's -- he's
5 been taking affidavits about who's an inventor. Can you
6 invent claims?

18:15

7 MR. PINKERTON: Well, yeah. You're
8 asking about something other than invention.

9 MR. HARRIS: No.

10 MR. PINKERTON: Yeah, you are. You're
11 asking what it reads on. You didn't ask him who
12 invented it. You asked him an infringement question.

18:15

13 MR. HARRIS: You have to know what it is
14 to begin with, okay?

15 MR. PINKERTON: Yeah. But not --

16 MR. HARRIS: So we start off with that,
17 and then -- then I'll know what to ask him.

18 MR. PINKERTON: Well, you're asking him
19 scope, claim interpretation, totally different question
20 than who invented it.

18:15

21 MR. FALK: You're asking me, Bill, if I
22 have a copy of the reissue claims that were one of the
23 exhibits to his Declaration, and it so happens I don't.
24 They were Bates numbered, and you have had the same
25 access that I have.

18:15

1 MR. HARRIS: Yeah. There's no question 18:
2 about that.

3 MR. FALK: I'm just having --

4 MR. HARRIS: No. I would --

5 MR. FALK: -- I have a notebook on --

6 MR. HARRIS: -- say the same. I -- I
7 keep mine about ten feet away more from the desk than
8 you do.

9 MR. FALK: Are they on the floor still in
10 the box? 18:15

11 MR. HARRIS: Certainly. I'm not going to
12 tell you whether I've opened that box or not.

13 MR. FALK: I know you won't, but it so
14 happens I don't have those claims, not with me right
15 here. 18:16

16 MR. HARRIS: Well, we're not going to be
17 able to -- maybe tell me if this happens to be the --

18 (Documents handed to counsel.)

19 MR. FALK: If it's Bates numbered and it
20 has -- looks like reissue claims -- this looks like this 18:16
21 could be the exhibit to Mr. Bird's Declaration.

22 And if Mr. Wilson says they are, I'll
23 accept that.

24 MR. HARRIS: Okay.

25 Q. (BY MR. HARRIS) Well, did you read these? 18:1

1 You said glanced or something a minute ago?

18:16

2 A. Yes, I --

3 (Documents handed to witness.)

4 Q. I want you to focus on them a little more.

5 A. Okay.

18:16

6 Q. You see, my theory is one has to know what it
7 is you're talking about before you know who invented it.

8 A. Yeah.

9 Q. Honestly, it's your theory, too.

10 A. (Witness reviews documents.)

18:17

11 (Sotto voce discussion.)

12 A. What was your question?

13 Q. (BY MR. HARRIS) Do they look familiar to you?

14 A. Yes.

15 Q. All right. I wanted to know if any of them
16 involved any kind of interstation apparatus, and I'll
17 break it down to two questions.

18:19

18 The other question is: wouldn't each of
19 them read on a printing line that had a dedicated
20 station up front, a dedicated flexo station up front?

18:20

21 A. "Up front," do you mean upstream?

22 Q. Yeah, upstream is what you would say. I'm --
23 I'm a layman.

24 A. Just like me. Boy, we should get on well,
25 shouldn't we.

18:20

1 There should be a -- an up-front station, 18
2 whether it be dedicated or not is debatable.

3 Q. Did the claims have -- do all of the claims
4 read on no more -- I'm putting it wrong.

5 Would an up-front station satisfy all of 18:20
6 the claims, a dedicated up-front station?

7 MR. PINKERTON: Dedicated upstream.

8 Q. (BY MR. HARRIS) Dedicated up-front
9 flexographic station?

10 A. I think an up-front flexographic station would 18:21
11 meet most of the claims, yes.

12 Q. And as far as the claim is concerned in this
13 invention, it doesn't matter whether there is any kind
14 of retractable or removable or other device to convert a
15 station; is that true? 18:21

16 A. That is true, but I did say a flexo station up
17 front.

18 Q. A flexo station.

19 A. Yeah. Okay. Yeah.

20 Q. To convert to a flexo station -- 18:21

21 A. Yeah.

22 Q. -- that's it. Once it's converted, you have a
23 flexo station, so to speak, for the time being --

24 A. Yes.

25 Q. -- right? 18:2

1 A. But that could be achieved several --

18:21

2 Q. But --

3 A. -- ways.

4 Q. -- but I trust that there's nothing in there

5 anywhere to tell you about that step of converting?

18:22

6 That's another way to put it. Did you find anything?

7 A. I -- in my cursory look, no.

8 Q. Would you need to take a bigger look?

9 A. Well, it depends how much time you think we

10 have.

18:22

11 Q. I've got an appointment day after tomorrow.

12 A. I didn't see anything with my cursory glance,

13 no.

14 Q. I'm trying to make a deal with you. I

15 certainly will accept that as a -- as a good answer, but

18:22

16 if you find a different answer that you will let us know

17 promptly and make yourself available for

18 cross-examination on the point?

19 A. For sure.

20 Q. Okay. Then we'll go on.

18:23

21 MR. PINKERTON: Yeah. Let's -- let's go

22 off the record a second, Bill.

23 THE VIDEOGRAPHER: Time is 6:23 p.m.

24 We're off the record.

25 (Recess from 6:23 p.m. to 7:06 p.m.)

19:06

1 Q. (BY MR. HARRIS) Oh, yes, we've been --

2 THE VIDEOGRAPHER: The time is 7:06 p.m.
3 We're on the record.

4 Q. (BY MR. HARRIS) -- talking about the first
5 true and correct inventors. We've been through part of
6 that, and I say that merely to bridge over it.

19:06

7 MR. HARRIS: Have you got us on the
8 record yet?

9 THE VIDEOGRAPHER: Yes.

10 MR. HARRIS: All right.

19:06

11 Q. (BY MR. HARRIS) My question now is, is on
12 what basis do you use to judge inventorship when you say
13 they're "the first true and correct inventors"?

14 A. Williamson Printing?

15 Q. Huh?

19:06

16 A. Williamson Printing. Based on the fact that
17 they were the first people that I'd ever heard come up
18 with such an idea, such an innovative idea, in my
19 opinion, as to the use of metallics in-line in the WIMS
20 process and then the improvement process, integrating
21 the -- the flexo process within that also.

19:07

22 Q. Did --

23 A. And since I had heard nobody in my 40 years of
24 experience ever talk of such methods and applications,
25 it suggested to me --

19:0

1 Q. Did you say "methods"? "Method"?

19:07

2 A. Methods.

3 Q. (Indicating.)

4 A. Methods.

5 Q. What methods?

19:07

6 A. Well, the -- the -- okay, procedure, process.

7 I'd never heard anybody talk of such a -- a procedure
8 and/or describe such a procedure anywhere else in the
9 industry.

10 So it seemed to me that with the little
11 experience I have of -- of patents that they had a
12 novel, unique invention. And it was -- it certainly
13 appears to have been corroborated through the Patent
14 Office.

19:07

15 Q. I'm correct, am I not, sir, you don't purport
16 to know the standard that's required for there to be an
17 invention of such nature as to be patentable? Do you
18 know the standard?

19:08

19 A. I -- I believe I do, loosely, yes.

20 Q. And did you take that standard in
21 consideration?

19:08

22 A. Yeah.

23 Q. And what is the standard?

24 A. Well, I believe the standard is that it has to
25 be unique and/or novel as an application to be

19:08

1 patentable. That's what I believe.

19

2 Q. You're aware, aren't you, sir, that it takes
3 more than that?

4 A. (Nodding head affirmatively.)

5 Q. You are or you aren't?

19:08

6 A. I guess I'm not aware.

7 Q. Did you ever hear "as opposed to novelty of
8 obviousness"?

9 A. I understand the term. I didn't think that
10 this was obvious.

19:09

11 Q. But that wasn't within the standard you gave
12 me a moment ago?

13 A. No, it isn't. But like I said, I'm not a
14 patent lawyer, either.

15 Q. So you offer this -- it's fair to say, isn't
16 it, you'd agree with me, that you offer this as a lay
17 opinion by one in the printing field?

19:09

18 A. Yeah. I'd say that was fair.

19 Q. Now, would you be able to identify the
20 drawings and invention records of Williamson?

19:10

21 A. No.

22 Q. Did you see any?

23 A. No.

24 Q. Did Williamson provide you or anyone else that
25 you're aware of at Printing Research with any drawings

19:

1 or sketches or directions on just what it was that was
2 needed?

19:10

3 A. No.

4 Q. Have you ever seen any papers that purport to
5 contain anything like that?

19:10

6 A. No.

7 Q. Any kind of specifications as to what was
8 needed in writing?

9 A. Not in writing, no.

10 Q. And I -- I simply -- you -- you -- excuse me.
11 Strike all that.

19:11

12 In 4 of your Declaration --

13 A. Uh-huh.

14 Q. -- which is exhibit --

15 MR. HARRIS: What?

19:12

16 MR. WILSON: 2.

17 Q. (BY MR. HARRIS) -- which is Exhibit 2 --

18 MR. PINKERTON: Paragraph 4?

19 Q. (BY MR. HARRIS) -- you take the --

20 MR. HARRIS: Huh?

21 MR. PINKERTON: Paragraph 4 or page 4?

22 MR. HARRIS: Page 2.

23 MR. PINKERTON: Page 2.

24 MR. HARRIS: Exhibit 2, page 2, paragraph

25 4.

19:12

1 Q. (BY MR. HARRIS) You take the position that 19
2 "Howard DeMoore didn't conceive or reduce," and it goes
3 on, but you can look at it if you want to. And you
4 state that "these various allegations are false."

5 A. Uh-huh. 19:12

6 Q. Did you follow him around every minute?

7 A. No, not at all.

8 Q. How do you know what's in his mind?

9 A. I don't.

10 Q. How do you know those are false, just actually 19:12
11 know?

12 A. Because in the position that I was in within
13 the corporation, I know that it would have been
14 discussed -- or at least I feel that it would be
15 discussed, and I think it's a fair assumption -- 19:13

16 Q. Uh-huh.

17 A. -- therefore, that I would have known of that.

18 Q. But you didn't discuss the patent application
19 with him that was going to be filed by Williamson, did
20 you? 19:13

21 A. I don't know whether I did or not. I don't
22 recall. I may have done.

23 Q. You might have done a lot of things, sir.
24 What do you remember doing?

25 A. I don't remember -- I don't recall. I know 19:

1 for sure I spoke with Steve Garner, but I don't recall
2 speaking with Mr. DeMoore about it.

19:13

3 Q. Is it fair to say that as far as you know
4 there is not one piece of paper to authenticate any
5 claims that Williamson might have to conception and
6 reduction to practice in any way of the 363 invention?

19:14

7 MR. PINKERTON: Objection as to form,
8 and -- and he certainly hasn't seen all the papers.

9 MR. HARRIS: I didn't say he had. I
10 asked him what he had seen, if he'd seen anything.
11 Listen.

19:14

12 MR. PINKERTON: I did listen. I didn't
13 hear it.

14 MR. HARRIS: I didn't say whether there
15 was anything or not, I asked him --

19:14

16 MR. PINKERTON: I think that was --

17 MR. HARRIS: -- what he'd seen.

18 MR. PINKERTON: No. I think that was the
19 question, whether or not there are any, if I understood
20 it.

19:14

21 MR. HARRIS: Well, I've been wrong
22 before. Let's read it back.

23 (Record read by reporter.)

24 MR. HARRIS: 363.

25 MR. PINKERTON: Yeah, it said -- you

19:15

1 didn't have anything that he's seen in there. Is that
2 the question, that he's seen? He hasn't seen our --

3 MR. HARRIS: Yeah, I think that's what it
4 says.

5 MR. PINKERTON: It didn't say that, Bill.

6 MR. HARRIS: Boy, I can't hear over here.

7 MR. SWEENEY: It says, "as far as you
8 know." Read back the beginning of the question.

9 MR. HARRIS: "As far as you know."

10 That's it. I believe that's right.

11 MR. SWEENEY: Read back the beginning of
12 the question.

13 MR. PINKERTON: Read it back.

14 MR. HARRIS: Thank you.

15 (Record read by reporter.)

16 MR. HARRIS: "As far as you know."

17 MR. SWEENEY: It's only the basis of his
18 knowledge, John.

19 MR. PINKERTON: Okay. As far as you
20 know.

21 But it -- it shouldn't be implied that
22 he -- he has seen all the documents because he hasn't.

23 MR. HARRIS: There's nobody trying to
24 imply anything. The question is the question, and the
25 answer is the answer.

1 MR. PINKERTON: Okay. With that
2 objection clarification, we can go forward.

19:15

3 A. I had not been privy to documentation.

4 Q. (BY MR. HARRIS) To what?

5 A. Any documentation from -- from Williamson
6 Printing Corporation.

19:15

7 Q. What was your significant experience in
8 flexography at the time you came in 1991?

9 A. I'd worked with flexographic printing
10 corporations in the art of drying techniques since
11 nineteen-eighty -- I'd say probably about '81 through --
12 through '91 one way or another and had a --

19:17

13 Q. Uh-huh.

14 A. -- patent on file that -- that related to
15 that.

19:17

16 Q. Did you design or, for that matter, sell
17 coater equipment for the purpose of flexographic
18 conversion?

19 A. No.

20 Tell a lie. Tell a --

19:18

21 Q. Huh?

22 A. -- lie. Yes, I did. Yes, I did, as a matter
23 of fact. Yes.

24 Q. Do you want to explain?

25 A. I sold a system into -- into the Midwest where

19:18

1 we actually put a coater on a -- on a -- on a flexo
2 machine.

3 Q. What did you put on it?

4 A. We put a coating tower, built a coating tower,
5 onto a flexo machine for applying of coating in-line on
6 that flexo machine and -- and the drawing equipment to
7 provide that.

8 Q. Did it work?

9 A. Worked very well.

10 Q. And it used an anilox roller, huh?

11 A. That particular coater did not, but it was in
12 line with the flexo machine, which I think was part of
13 your question.

14 Q. Did you -- did you ever work with an anilox
15 roller before you came in 1991?

16 A. Oh, absolutely, yes.

17 Q. In coaters?

18 A. Not in coaters, no.

19 Q. Is that the only instance you can think of for
20 the question I asked a minute ago?

21 A. No. I have -- we had installed many and
22 several installations of -- of drying equipment on flexo
23 machinery.

24 Q. No. Now wait a minute. I was talking
25 about -- I was talking about the coater or the

1 conversion unit, either the coater or a conversion unit 19:19
2 to a coater?

3 A. We had not made a -- a flexo application
4 coater, no.

5 Q. Now, you indicated you found out that there 19:19
6 was something on the drawing board or being developed
7 when you came in '91?

8 A. Correct.

9 Q. In the area of -- I don't know whether to call
10 it a retractable or what. 19:19

11 A. No --

12 MR. PINKERTON: Not that.

13 A. -- wasn't retractable.

14 Q. (BY MR. HARRIS) Okay. What are we talking
15 about, anilox -- 19:20

16 A. It was --

17 Q. -- roller?

18 A. -- an anilox roll applicator --

19 Q. Uh-huh.

20 A. -- that was -- that was built into the 19:20
21 delivery of a litho press --

22 Q. Uh-huh.

23 A. -- a Heidelberg in particular.

24 Q. And was that built -- being built to practice
25 flexography on that station? 19:20

1 A. It was built to apply coatings on that
2 station.

3 Q. So who else had some experience in
4 flexography? Something was being developed, right?

5 A. Yeah.

6 Q. So who was that? Who had experience?

7 A. I think that there were a number of people
8 that had been involved in flexographic type coating
9 applications, but flexographic printing and -- and the
10 wherewithal, I don't think there were -- that existed at
11 Printing Research.

12 Q. Is that what you mean with that statement --
13 is that -- is that what you mean to say or imply by the
14 statement, "I believe I was the only person at PRI in
15 '91 to '95 that had any significant experience in
16 flexography"?

17 A. That's exactly what I mean.

18 Q. You're not saying that nobody else did. You
19 just think you had an niche of it that nobody else did?

20 A. Well, I believe that I had more knowledge
21 than --

22 Q. Well, you had --

23 A. -- than anybody else there.

24 Q. -- double niche, then, all right?

25 A. Double niche, if you like.

1 Q. You make the statement at the end of that 19:21
2 paragraph we've been working on on page 3, "A small
3 manufacturer of auxiliary equipment for presses such as
4 PRI, in my opinion, will not have such motivation other
5 than to produce a product in response to an order." 19:22

6 Is that your suggestion that all of the
7 work that the PRI ever did was just something that a
8 customer ordered?

9 A. Generally would be the case, yes. Remember
10 that at that stage, they had essentially two products, 19:22
11 which was Super Blue and rack-back.

12 Q. Well, that may be. However, they had high
13 hopes, huh?

14 A. Well, they employed me, so I guess they did.

15 Q. Yeah. They had high hopes, and they've got 19:22
16 all of those patents up on the wall that you don't
17 exactly know how to evaluate, true?

18 A. I think I can evaluate, yeah.

19 Q. But they're there, right? The United States
20 Government has granted them one way or another? 19:23

21 A. They're granted one way or another.

22 Q. And you had some others yourself you were on,
23 didn't you?

24 A. Yes.

25 Q. Was it the same kind of situation, you didn't 19:23

1 really invent anything, you just signed it to --

19

2 A. No, the --

3 Q. -- make the boss happy?

4 A. No. My -- my inventions were my inventions.

5 And they're up on that same wall, as a matter of fact.

19:23

6 Q. Well, and that makes --

7 A. They're up on the same wall.

8 Q. They're worthless?

9 A. Not to me they're not, no, because they were

10 my inventions.

19:23

11 Q. Okay.

12 A. And I know they were my inventions.

13 THE VIDEOGRAPHER: Mr. Harris, we're
14 going to need to change tape real quick.

15 MR. HARRIS: Okay.

19:23

16 THE VIDEOGRAPHER: The time is 7:23 p.m.
17 We're off the record.

18 (Off the record.)

19 THE VIDEOGRAPHER: The time is 7:25 p.m.
20 We're on the record.

19:25

21 Q. (BY MR. HARRIS) I'd like to go to paragraph
22 10 and --

23 A. Same document?

24 Q. -- check out a point with you out of this
25 same --

19:

1 A. Same document?

19:25

2 Q. -- Exhibit 2, page 4. On 10, "Steve Baker
3 told me in July 1994 meeting in Atlanta restaurant which
4 Davis and Williamson told him (Baker), in confidence, of
5 Davis and Williamson's intent to improve the so-called
6 'WIMS' metallic printing process of WPC, 976, of which
7 at that time I had some familiarity with the process,
8 but not a lot." (As read.)

19:26

9 Did Baker explain why he was willing to
10 break the confidence that he had been told? You said he
11 was told "in confidence."

19:26

12 A. Yes, but I think that "in confidence" in this
13 situation was -- I assume that Steve, and as I, took it,
14 this confidence to be held within Printing Research
15 rather than confidence to put around the industry. And
16 seeing as I was, at that time, his direct senior, he
17 wanted to share that with me.

19:27

18 Q. (Counsel reviews documents.) And -- did in 12
19 on page -- page 6 of this Exhibit 2, the experiments in
20 the fall of 1994 were conducted, as you say, and as I
21 understand, at PRI; is that true?

19:28

22 A. True.

23 Q. And they were done on PRI's own press, which
24 was a two-unit or two-color Heidelberg --

25 A. Correct.

19:29

1 Q. -- press?

19

2 And did -- were there some special
3 occasions or directions or something written up by WPC
4 for these runs you're talking about?

5 A. I do believe we're referring to the exhibits
6 that we spoke of earlier, which I believe is Bird 16.

19:29

7 Q. Well, you say this was in 1994 --

8 A. Uh-huh.

9 Q. -- one of them was in December, I think --

10 A. Yeah, '94.

19:29

11 Q. -- and one of them was in '95.

12 A. Yes.

13 Q. That was the one where your son --

14 A. Yeah, but -- no, '94 was myself, but --

15 Q. '94 was you?

19:30

16 A. Uh-huh.

17 Q. And '95 was with your son?

18 A. Yes.

19 Q. So they didn't write out that sheet, did they?

20 A. No, but they -- but they told me what they

19:30

21 wanted to have --

22 Q. And it --

23 A. -- achieved.

24 Q. And it set the conditions out in there, right?

25 A. It did indeed.

19:

1 Q. And it told you to use a flexographic station 19:30
2 and follow it with lithographic stations, right?

3 A. No.

4 Q. That's what it says on the --

5 A. No, no, no. That says what the objective is. 19:30
6 It doesn't say what we did.

7 Q. That's what they told you to do, isn't it?

8 A. No.

9 Q. What did they tell you to do? Where does it
10 show in there -- 19:30

11 A. It says --

12 Q. -- what they told you to do?

13 A. -- "apply metallic" -- it says, "apply --
14 Procedure, apply water-based slurries and inks through
15 the EZB at the blanket position primarily, and 19:30
16 eventually from the plate position to compare."

17 That's what it says.

18 Q. Is that all the information they gave you?

19 A. It was all the information that we could
20 possibly have to be able to write up what a procedure 19:31
21 was going to be. The rest of the procedure is all the
22 conditions and then specified in the rest of the
23 document.

24 Q. Yes, and the rest of those conditions are
25 conditions of PRI, are they not? 19:31

1 A. No.

19

2 Q. Well, what are they?

3 A. They're conditions where the slurries, the
4 inks, the varnishes were either obtained or specified by
5 Williamson Printing for us to obtain.

19:31

6 Q. And you used Williamson's plates?

7 A. We used -- we did not use Williamson's plates.
8 We used -- sorry. We used Williamson's plates, sorry,
9 not PRI's plates, yes.

10 Q. Did you use Williamson's --

19:31

11 A. Yes --

12 Q. -- printer [sic]?

13 A. -- we did.

14 Q. I thought you used something else?

15 A. We used Rexham's plate in one --

19:31

16 Q. Well, now --

17 A. -- occasion.

18 Q. -- how many times did it say "Rexham" there?

19 A. Once.

20 Q. Uh-huh. And you -- you -- let me see --

19:32

21 A. By all means.

22 Q. -- what you've got since you've got it out
23 handy.

24 A. Yeah.

25 (Documents handed to counsel.)

19:

1 You've got one there.

19:32

2 Q. Okay. Well, here all I see is -- on 16 all I
3 see is "Rexham"?

4 A. Well, you see -- you -- you really need to
5 read on because it says, "Rexham plates to be used.
6 Customer to supply relief plates for blanket and plate
7 position" --

19:32

8 Q. Uh-huh.

9 A. -- "Customer to supply."

10 I believe the customer in question is
11 Williamson Printing.

19:32

12 Q. So there, too?

13 A. So there, too.

14 Q. Let me have the other one, please.

15 A. I'm sure you have the other one --

19:32

16 Q. I do?

17 A. -- but I'd be very happy to comply with that.
18 You're a gentleman.

19 MR. PINKERTON: He's only going to help
20 you so much, Harris.

19:32

21 (Document(s) handed to counsel.)

22 Q. (BY MR. HARRIS) They -- I gather they made
23 the anilox rollers that were used, right?

24 A. No. No, they did not.

25 Q. They didn't make any of the equipment they

19:33

1 were using, and they didn't decide what sizes to use, 19
2 did they?

3 A. Sizes of what?

4 Q. I don't know, you tell me. There's sizes of
5 things. 19:33

6 MR. PINKERTON: Ask him a question or
7 don't.

8 A. That's pretty vague. I really can't answer a
9 question that isn't one.

10 Q. (BY MR. HARRIS) Well, who made the -- who 19:33
11 made the decision as to which anilox roll to use?

12 A. If you also read on.

13 Q. Okay. I will read on. I'm asking a
14 question --

15 A. Okay. 19:33

16 Q. -- and it doesn't have anything to do with
17 "read on." Just give me an answer.

18 A. Yes. Anilox rolls were specified.

19 Q. Were what?

20 A. Were specified. 19:33

21 Q. Were specified. Where?

22 A. In both documents.

23 Q. Well, tell me where.

24 A. If you pass it back to me I might be --

25 Q. Okay.

1 A. -- able to find it for you.

19:34

2 Q. Okay.

3 (Documents handed to witness.)

4 A. (Witness reviews documents.) Unfortunately,
5 we don't have the back side of this document; however,
6 we do say here, "PRI to supply -- PRI to supply," in
7 this case -- on this case, "banded rubber roll anilox."

19:34

8 And the purpose of the banded roll
9 anilox, as we suggested earlier, was because we were
10 looking for what the ideal setting would be for the cell
11 counts on the anilox.

19:34

12 MR. WILSON: What is the date on that
13 one?

14 THE WITNESS: This is in February of '95.

15 MR. PINKERTON: By the way --

19:34

16 Q. (BY MR. HARRIS) In February of '95?

17 A. Yeah.

18 Q. And so -- so there's not any specific
19 specification made by the customer as to just which
20 anilox roll to use, is there?

19:34

21 A. We talk about that in --

22 Q. Well, that -- this is the other --

23 A. I --

24 Q. -- test.

25 A. -- understand that, but this is in December.

19:35

1 In December, we actually start to make those
2 determinations, and we talk about that on the back page.

3 Q. Well, this one's February the 13th.

4 A. Yeah, it's --

5 Q. 17th [sic] is --

6 A. -- several -- several months further on.

7 Q. 17, February the 13th. And 16 is December the
8 20th, does that seem right to you --

9 A. Uh-huh.

10 Q. -- and 21st?

11 A. Uh-huh.

12 Q. And what you're telling me is that you took
13 down word for word here what was said by Williamson in
14 these --

15 A. No, no.

16 Q. And you didn't use any of your technical
17 knowledge to assist?

18 A. Of course, I did.

19 Q. And so part of these objectives and part of
20 the procedure, you helped in, or it came from you?

21 A. No. The objectives -- let's qualify.

22 Objectives are the customer's objectives.

23 Q. Okay. I --

24 A. The --

25 Q. -- hear you.

1 A. -- rational for the experimentation is myself 19:36
2 and Williamson --

3 Q. So --

4 A. -- the customer.

5 Q. -- that when you get to the procedure for 19:36
6 experimentation and the details, that was a combination
7 of your inputs; is that correct?

8 A. That's correct.

9 Q. Was Bob Emrick involved in that in any way?

10 A. Bob Emrick was an employee of Williamson 19:36
11 Printing Corporation, and, yes, he was involved.

12 Q. Was he involved in the specifications in any
13 way?

14 A. Not really, no. It was mainly Bill Davis and
15 Jesse Williamson. 19:37

16 Q. Getting back to what was said here, did -- did
17 you work on any experiments at PRI when Williamson
18 personnel was not present but which related to this
19 concept or assimilation of the concept?

20 A. Not that I'm aware of. 19:37

21 Q. When you say, "to the best of my knowledge, no
22 tests were ever conducted at PRI of the 363 invention,
23 only at WPC," it's a fact, is it not, sir, that the
24 first one that was at WPC was the one toward the end of
25 the year in '95? 19:38

1 A. The first real -- real test on --

19

2 Q. Yeah.

3 A. -- this was a -- it was a production run.

4 Q. As a matter of fact, although I suppose it

5 might work, PRI was pretty glad to have a big unit,

19:38

6 multiunit, like the Heidelberg unit to try its --

7 A. Absolutely.

8 Q. -- product out on?

9 A. Absolutely.

10 Q. Its little two-station unit was not the best

19:38

11 for that purpose?

12 A. Correct.

13 Q. It says under 12 on this page 6 of Exhibit 2,

14 "Again, PRI, to the best of my knowledge, does not have

15 any late 1994 or early 1995 record, notebooks, E-mail,

19:39

16 or memoranda concerning any conception by PRI of the 363

17 claimed invention."

18 Is it true that you could have made that

19 statement and substituted the PRI in the sentence with

20 the Williamson Printing?

19:39

21 A. Read it again, first.

22 Q. Then it would read, "Williamson Printing, to

23 the best of my knowledge, does not have any late 1994 or

24 early 1995 record, notebooks, E-mail, or memoranda

25 concerning any conception by William -- Williamson

19:40

1 Printing of the 363 claimed invention."

19:40

2 A. I wouldn't have -- be privy to that
3 information.

4 Q. Again, it's documentation, isn't it?

5 A. I wouldn't have -- be privy to that
6 information.

19:40

7 Q. It's fair to say you don't have documentation
8 either way, for PRI or for Williamson?

9 A. That would be fair to say. Although, it's
10 much more likely that I would have it from Printing
11 Research if it was available.

19:40

12 Q. I understand from 13 that you did the
13 short-armed device described there that was fit on the
14 end of the press --

15 A. Uh-huh.

19:41

16 Q. -- on speculation so to speak?

17 A. Yes, somewhat.

18 Q. And that speculation was primarily directed
19 toward Williamson, you believe?

20 A. Yes.

19:41

21 Q. And anybody else that would take it, I
22 suppose?

23 A. Yes.

24 Q. And you say, "We had no firm orders" for this
25 business, and I guess that's what makes it a

19:41

1 speculation, right?

2 A. Correct.

3 Q. You say later in there, "Had PRI had the
4 prototype near ready for installation, it would have
5 been mentioned in a letter."

6 Sir, it's fair to say, is it not, since
7 you didn't take those files with you, you -- your memory
8 may be dim somewhat on it and, moreover, that you
9 wouldn't necessarily know that?

10 A. I think that's fair.

11 Q. And you note at the end of that paragraph that
12 "PRI had no commitment from WPC for any order of,"
13 quote, "such device." (As read.)

14 That is, one that -- with cantilevered
15 end of -- I beg your pardon. Kill that. I don't think
16 it makes any sense.

17 Here it says, "there was no established
18 market for an interstation, and no one at PRI
19 appreciated, much less knew of, the details of the 363
20 inventive process outside of the disclosure made to
21 Baker"?

22 A. Uh-huh.

23 Q. Does that mean to say that that disclosure got
24 scattered around, but they didn't know any other, quote,
25 "details"?

1 A. It means that, from a marking standpoint, I
2 don't believe that the personnel at Printing Research
3 had an appreciation for the market potential or
4 otherwise of such a product.

5 Q. Well, sir, what inventive notion was there
6 outside of the disclosure made to Baker that existed at
7 that time? What was there?

8 A. There -- there wasn't.

9 Q. That was all of it, wasn't it?

10 A. Pretty well.

11 Q. You would have it that way?

12 A. Yeah, sure.

13 Q. So that's a way of saying they knew at that
14 date what Williamson knew, that is, in December?

15 A. I don't think that's true.

16 Q. Why?

17 A. Well --

18 Q. I'm going to give you a "why" question. That
19 opens it wide up for you.

20 A. Clearly, Williamson knew exactly what their
21 objectives were and -- and knew what their market was
22 for such a product.

23 And we at Printing Research knew that
24 there may be a market for such a product, and we were
25 preparing to see if we could manufacture such a product.

1 But since the market --

19

2 Q. I really wasn't asking about the marketing,
3 I -- but I believe I understand better now what you
4 meant.

5 Is that what you meant when you made that
6 statement "no established market for an interstation and
7 no one at" --

19:45

8 A. Correct.

9 Q. -- "PRI appreciated, much less knew the
10 details of the 363 inventive process outside of the
11 disclosure made to Baker"?

19:46

12 And what you have done is to respond to
13 my question by pointing out that Williamson's knowledge
14 of the market. Is that what you're trying to say there?

15 A. No, no. I'm saying their knowledge of what
16 they wanted to achieve in the market was what we knew --
17 what I knew to be a fact and that we -- there was no
18 established market because there was no market other
19 than that which Williamson was striving to achieve.

19:46

20 Q. Well, we're talking about the details of the
21 inventive 363 process here.

19:46

22 A. Correct.

23 Q. Not the market, entirely, or are you?

24 A. Yeah. You're talking about both.

25 Q. Okay. Well, you're talking about both?

19:4

1 A. Uh-huh.

19:46

2 Q. So, now, tell me what it was they knew that
3 you didn't know then?

4 MR. PINKERTON: In regard to what?

5 That's a vague --

19:47

6 MR. HARRIS: In regard to -- I'll get it
7 here. For an interstation, as he said, and "no one at
8 PRI appreciated, much less knew, the details of the 363
9 inventive process outside of the disclosure made to
10 Baker."

19:47

11 MR. PINKERTON: Do you understand the
12 question?

13 THE WITNESS: Sort of. It's -- it's
14 convoluted, but --

15 Q. (BY MR. HARRIS) Huh?

19:47

16 A. I think it's somewhat convoluted as a
17 question, but it's -- I'm not sure I understand why you
18 don't understand the answer.

19 There was a need, a requirement, from a
20 customer for a market that they had, and they were --
21 they had disclosed to us as a means of wanting to be
22 able to achieve.

19:47

23 So there clearly wasn't a market because
24 there was nothing out there that would do such a thing
25 or was able to do such a process.

19:48

1 And so there's no market established, and 19
2 we're looking at it, I'm looking at it, and saying,
3 "Okay. There's the one use. Now there may be other
4 uses for this, and now we need to do our market research
5 to -- to find out what those other markets are," which I 19:48
6 did go on to do.

7 Does that help? I hope it does.

8 Q. What didn't you know about the purported
9 invention that they did that doesn't relate to sales or
10 marketing? 19:48

11 A. Who -- who is "they"?

12 Q. I guess "they" is Williamson.

13 MR. PINKERTON: I'm going -- I want to
14 object to the form of the question. It's convoluted and
15 vague and ambiguous. 19:49

16 A. I -- I don't know how to answer it because
17 I --

18 Q. (BY MR. HARRIS) I --

19 A. -- don't understand the question.

20 Q. -- I don't think you can answer it, sir. I 19:49
21 put it to you several ways, and you keep talking about
22 marketing.

23 I want to know what it was that you
24 didn't know about the invention. I don't want to hear
25 anything about marketing. My question is directed to 19:

1 that.

19:49

2 MR. PINKERTON: Object to the form of the
3 question. He's going to tell you what he didn't know?
4 I don't understand the context or the --

5 THE WITNESS: That's pretty tough.

19:49

6 Q. (BY MR. HARRIS) Well, you seem to have taken
7 an affidavit on it --

8 MR. PINKERTON: No one at PRI --

9 Q. (BY MR. HARRIS) -- and "no one at PRI
10 appreciated, or much less" -- you were at PRI then.

11 A. I explained to you what I meant by that, and
12 you cannot accept my explanations.

13 Q. Not as long as it has the word "market" in it.

14 A. Well, I'm sorry, but that's what I meant.

15 Q. Okay. So if you struck the words "there was
16 no established market for an interstation" --

19:50

17 A. I think that says "market," doesn't it?

18 Q. It does, absolutely. But suppose you struck
19 it. Look at it.

20 "There was no established market for an
21 interstation." Let's strike it. And just suppose that
22 you didn't have the conjunctive there, "and," and it
23 said, "No one at PRI appreciated, much less knew of, the
24 details of the 363 inventive process outside of the
25 disclosure made to Baker."

19:50

19:50

1 Now you don't have that in the answer 19
2 then. Is it not applicable unless there's something
3 said about the market, or is it applicable -- or is it
4 applicable anyway by itself?

5 A. Tough one to answer... 19:50

6 Q. Huh?

7 A. It's a tough one to answer. I've got to think
8 about it.

9 (Sotto voce discussion.)

10 MR. PINKERTON: I think it's kind of -- 19:51
11 well --

12 Q. (BY MR. HARRIS) My colleague has suggested
13 that perhaps my question is not pretty and that I say to
14 you this: Looking in the context of that paragraph --

15 A. Okay. 19:51

16 Q. -- and the end of that paragraph, now we write
17 the word "did" in before "no one" on the third line from
18 the bottom of it, and we strike the "and" out or put a
19 period or something over there, and say, "Did anyone at
20 PRI appreciate, much less know of, the details of the 19:52
21 363 inventive process outside of the disclosure made to
22 Baker?"

23 A. Okay. So what's the question?

24 Q. That's the question.

25 MR. WILSON: Did anyone? 19:53

1 Q. (BY MR. HARRIS) I read it again -- 19:52

2 THE WITNESS: I think that --

3 Q. (BY MR. HARRIS) -- "Did anyone at PRI
4 appreciate, much less know" --

5 A. I think --

6 Q. -- "of the details of the 363 inventive
7 process outside of the disclosure made to Baker?"

8 A. I guess if anybody had cared to read, and I
9 don't know how many people did care to read, but if
10 anybody had of cared to read this statement, they -- 19:52
11 they would have been aware of what it was we were -- our
12 objective was.

13 It was my belief, strong belief, that not
14 too many people read memos and papers that were sent
15 round to individuals. 19:52

16 Q. Well, what about yourself, sir? Were you at
17 PRI?

18 A. At that time, I was.

19 Q. Yes. And you knew, didn't you?

20 A. Yes. 19:53

21 Q. Well, is this statement correct, then?

22 A. Well, I mean, we're -- we're playing with
23 words, aren't we?

24 Q. What?

25 A. We are playing with words, aren't we? 19:53

1 MR. PINKERTON: We really are because -- 19
2 I want to object.

3 Q. (BY MR. HARRIS) Did you know words are the
4 way we communicate in this world?

5 A. Well, that's normally the case. 19:53

6 Q. Yeah.

7 A. That is normally the case, I'd agree.

8 MR. PINKERTON: There's a great deal of
9 confusion. The disclosure to Baker is a disclosure that
10 he's talked about having been made to him also. So 19:53
11 it's -- it's difficult to deal with it in the context
12 that you're talking about because he doesn't know if
13 you're including him in this or not.

14 MR. HARRIS: Well, he does now. Anyone
15 at PRI. 19:53

16 THE WITNESS: Well, I mean, you're
17 playing with words. And that's --

18 MR. HARRIS: And also -- huh?

19 MR. PINKERTON: I mean, we've had --

20 MR. HARRIS: Sir, I'm going to ask that 19:53
21 question over and over again until you quit playing with
22 words.

23 MR. PINKERTON: I'm going to object --

24 MR. HARRIS: Don't be -- please don't be
25 evasive with you [sic], I'm not being nasty with you. 19:

1 I'm doing my best to ask a question. Somebody else
2 tried to word it over here, and it seemed very hard for
3 you to handle.

19:54

4 Q. (BY MR. HARRIS) Are you not capable of
5 answering that question?

19:54

6 A. Probably not.

7 Q. Why?

8 A. Because you're asking for an -- an impossible
9 task.

10 Q. Why did you put it in this --

19:54

11 A. You're -- you're --

12 Q. -- paragraph?

13 A. -- misconstruing what it's saying. And you're
14 purposefully misconstruing it in my opinion, okay?

15 Q. Well, you can say anything you like. I could
16 accuse you of purposefully doing a lot of things, but
17 I'm not going to --

19:54

18 A. Good.

19 Q. -- and you better not do it to me.

20 A. Or?

19:54

21 MR. PINKERTON: Okay. I'm going to
22 object to the --

23 Q. (BY MR. HARRIS) Or I won't like it.

24 MR. PINKERTON: I want to object on the
25 record to the argumentative nature of the question.

19:54

1 The witness has done his best to try to 19
2 answer your question. It's -- it's difficult because,
3 you know, in terms of PRI, he's talked about this
4 disclosure to Baker was a disclosure to Baker --

5 MR. HARRIS: Uh-huh.

6 MR. PINKERTON: -- was a disclosure made
7 to him, and we've talked about that at great length.
8 So --

9 MR. HARRIS: I know that.

10 MR. PINKERTON: -- so obviously he knew 19:55
11 about it.

12 MR. HARRIS: That's not what he means by
13 the paragraph or the sentence. He doesn't mean that,
14 either.

15 MR. PINKERTON: He's saying -- he's 19:55
16 saying that no one appreciated at PRI other than what
17 Baker had told him and what he had gotten from
18 Williamson. That's what he's saying.

19 Q. (BY MR. HARRIS) I think that what you were
20 saying, sir -- I'm trying to get this straightened out. 19:55

21 I think what you're saying, sir, is that
22 that amount of information that Baker had was all that
23 PRI had and that there was more information some place,
24 like at Williamson, that extended beyond that.

25 And that's the way I read it in the first 19:--

1 place, and then I wanted to question you with that
2 thought in mind.

19:55

3 A. Okay. But that's not how I interpreted your
4 question.

5 Q. Let me ask you an unusual question. Let's get
6 off this thing. How did you interpret my question? Is
7 Mr. --

19:56

8 A. I -- (Indicating.)

9 Q. Is he right?

10 A. John Pinkerton is absolutely --

19:56

11 Q. Okay.

12 A. -- on the mark.

13 Q. And so if you put your name in there, too, in
14 it --

15 A. Then it's -- then it's fine. Then it reads
16 fine.

19:56

17 Q. Okay. So -- so he and you --

18 A. Correct.

19 Q. -- knew?

20 A. Yes.

19:56

21 Q. Okay. You'd have that much. And to some
22 extent, then, I suppose, the persons that -- did he
23 report to you, Baker?

24 A. Yes, at that time.

25 Q. And who did you report to, Steve, Steve

19:56

1 Garner?

2 A. I was never sure, but, yes, I -- I think, at
3 that time, Steve Garner. One never knew.

4 Q. Would you have reported to your superior?

5 A. I would report to my superior.

6 Q. Would you keep them abreast of this situation?

7 A. Yes, I would.

8 Q. So they might know as much as --

9 A. They --

10 Q. -- the two of you --

11 A. -- they --

12 Q. -- know?

13 A. -- they should and would, yes. I would have
14 let -- if Steve was my boss at the time, I would have
15 discussed it with Steve, yes. So he should be in there,
16 too.

17 Q. So there's a limit -- a rather limited number
18 of people, but now we've got it up to Steve, too, right?

19 A. We've got three now as opposed to one.

20 Q. Okay. Maybe we can avoid an impasse like that
21 again.

22 MR. PINKERTON: Bill, we're at eight
23 o'clock. Can I have a little time with the witness? Do
24 you want to go until 8:30 yourself? You're not going to
25 let me any redirect?

1 MR. HARRIS: I don't think that that'll
2 do you any good tonight. All it'll do is muddy the
3 water. We're going to -- we're -- we're going to get
4 into a situation where we have to go forward with it
5 anyway. Instead of me coming back and breaking it in
6 the middle -- John, believe it or not, it's like your
7 daddy used to say, "I'm doing it for your own good."

19:57

19:57

8 MR. PINKERTON: Well, you might think
9 that, but I don't because I thought our deal was that I
10 was going to have part of this time if we stayed here
11 and worked until this time. I thought that was our
12 deal, that I was going to get to ask some questions.

19:58

13 Was that not our deal?

14 MR. HARRIS: No, I didn't think it
15 finally was, John. I know that was what you offered to
16 begin with was an hour and an hour. And I told you
17 about my problems with redirect that I'd have to have
18 and everything.

19:58

19 How -- how would it hurt you, John, to
20 wait and give you time to go over all the testimony if
21 you want to?

19:58

22 MR. PINKERTON: That -- that's fine.
23 That's fine if you -- that's fine. It's just different
24 than what I thought our deal was, but that's fine.

25 MR. HARRIS: You and I honestly disagree

19:58

1 there, you know?

19

2 MR. PINKERTON: Okay.

3 MR. HARRIS: We've done that before, but
4 we've also honestly gotten along pretty well.

5 MR. PINKERTON: That's fine.

19:58

6 MR. HARRIS: Let's keep it up, you
7 know --

8 MR. PINKERTON: That's fine.

9 MR. HARRIS: -- I don't want to --

10 MR. PINKERTON: Go ahead. We'll -- my
11 questions will just be reserved.

19:59

12 MR. HARRIS: Sure.

13 MR. PINKERTON: They'll have to be.

14 MR. HARRIS: Sure.

15 MR. PINKERTON: Okay.

16 MR. HARRIS: Well, they would be anyway.
17 Got to be.

18 I doubt -- what I'm saying is, I doubt
19 that I'll pass the witness, but if I did, I don't think
20 you'd get very far on him.

19:59

21 Q. (BY MR. HARRIS) Very -- very quickly, are you
22 still amazed or surprised, as it here says in 14, that
23 you can patent a process?

24 A. No, not anymore.

25 Q. Is that just because of what's happened here?

20:00

1 A. Just because of what I've seen out -- 20:00
2 Q. Uh-huh.
3 A. -- in the market place.
4 Q. And it was true, though, on the other hand --
5 A. I wouldn't have believed you could patent a 20:00
6 double click, a single click on a computer, either, but
7 you can.
8 Q. But -- but it is true that at the time you
9 took this affidavit that you believed that?
10 A. Yes. 20:00
11 Q. And at the time that you --
12 A. Well, no when I took the affidavit --
13 Q. Maybe not even that, huh?
14 A. -- it was -- I believed it at the time.
15 Q. Then -- just to make it even, back when you 20:00
16 were going back to the car and the offices, as it says
17 here, you thought it was amazing at that time, then --
18 A. Yes.
19 Q. -- that anybody --
20 A. Yes. 20:00
21 Q. -- could patent a process apart from
22 equipment?
23 A. Yes. Yes, I did.
24 Q. So that was after that January meeting, huh?
25 A. If that's the date, yeah. Yeah. 20:00

1 Q. Yeah. That's what you put down. 20

2 Again, under 15, it talks about
3 information in confidence from Jesse Williamson and --
4 and Bill Davis.

5 What did you do with the information? 20:01

6 A. I talked to my superiors within the
7 corporation, within Printing Research.

8 Q. Now who -- who was that?

9 A. That would have been, in fact, I know that I
10 showed it to Howard DeMoore. I know I showed it to 20:01
11 Steve Garner. Actually, anybody that was involved in
12 the -- in the coating aspects of this project. Because
13 it was startling.

14 Q. Well, would you be surprised to know that
15 there's a sketch of the interstation coater very 20:02
16 similar, that is a Ferris wheel type, to the one to
17 provide Williamson that antedates this March '95 date
18 considerably?

19 A. Not that surprised, no.

20 Q. December? '94, December? 20:02

21 A. Is that right? I don't know. But it doesn't
22 surprise me.

23 Q. You wouldn't be too surprised, huh?

24 A. No, no.

25 Q. And you say, "let alone completed blue 20:0

1 prints." And that wouldn't be too big of a surprise,
2 either, if there were some of those?

20:02

3 A. Yeah. Probably be more of a surprise,
4 actually.

5 Q. Well, it's always a matter of
6 interpretation --

20:02

7 A. Sure.

8 Q. -- about what a completed blue print is.

9 A. Big difference, yes.

10 Q. It might -- it might have a purple corner and
11 not be a blueprint.

20:03

12 A. You're correct.

13 Q. And are you confident about this statement in
14 No. 15 where it is said that this sketch of Rendleman
15 coater "was put in the 363 process as Figure 2"?

20:03

16 A. (Witness reviews documents.)

17 Q. It's toward the end --

18 A. I see it at the end, yeah.

19 Q. -- of the paragraph.

20 A. Yeah.

20:04

21 Q. Do what?

22 A. Yeah. That was a computer-generated --

23 Q. Yeah.

24 A. -- drawing that we produced.

25 Q. Uh-huh. But that's still accurate, whatever

20:04

1 it was, right?

2 A. Oh, yeah, it's accurate.

3 Q. Okay. (Counsel reviews documents.) The
4 Rexham test, did that involve the production of
5 flexo-applied gold sheets?

6 A. I believe so.

7 Q. And under paragraph 17, do you still believe
8 that in '95 you and Steve Garner showed Jesse Williamson
9 a flexo-applied gold sheets [sic]?

10 A. Yes.

11 Q. When do you believe the Rexham test was run?

12 A. I believe it was run at that -- at that time.

13 Q. Would you be surprised to find out that it was
14 run a number of months earlier?

15 A. I would.

16 Q. But it --

17 MR. PINKERTON: I think there's been --
18 excuse me. For the record, I think it mischaracterizes
19 his testimony. I think he had previously talked about
20 when that was run, so the record will state what he's
21 already testified about when there was a Rexham test.

22 MR. HARRIS: I'm willing to accept both
23 what he has said and what he's now saying.

24 MR. PINKERTON: Okay. Yeah, well, I
25 think it's getting late, he's testified about it once,

1 you're now coming back to it again.

20:06

2 MR. HARRIS: I'm not going to go any
3 further on it now.

4 MR. PINKERTON: Okay.

5 MR. HARRIS: I'll accede to that.

20:06

6 Q. (BY MR. HARRIS) When you showed Jesse
7 Williamson and Steve -- I beg your pardon -- you and
8 Steve Garner showed Jesse Williamson the gold sheets, is
9 it a fact that that was your "first inkling of the
10 potential and subsequent idea to install such device
11 upstream on a litho press"?

20:07

12 A. It was the first time that we realized through
13 discussion with -- with Jesse that that was a real
14 potential.

15 Q. And all I want to know is that was -- that was
16 soon after the Rexham --

20:07

17 A. Yes.

18 Q. -- test?

19 A. Yeah.

20 Q. Okay. (Counsel reviews documents.) You were
21 involved pretty heavily in this negotiation about
22 exclusivity and the license and so on as it relates to
23 the subject matter supplied by -- by Printing Research,
24 weren't you?

20:07

25 A. Yes.

20:09

1 Q. Now, you make the statement under 24, "The
2 Rendleman coater was developed at the suggestion of Bill
3 Davis and Jesse Williamson for WPC."

4 It -- it's fair to say, isn't it, that by
5 that statement you're not saying that the Rendleman
6 coater, as such, is not an invention as far as Printing
7 Research is concerned, the Rendleman coater?

8 A. Is not an invention?

9 Q. You're not saying that here, are you? You
10 say, "The Rendleman coater was developed at the
11 suggestion of Bill Davis and Jesse Williamson for WPC."

12 Does that mean to say that they told him
13 how to do it?

14 A. No. No.

15 Q. And so it was the doing of himself, and they
16 were talking about a function, right?

17 A. Oh, absolutely.

18 Q. Now, under 26, paragraph 26 on page 12 of this
19 Exhibit 2, you say here, "the tests conducted at PRI in
20 October of '94 were at the suggestion of Williamson and
21 Davis and did not illustrate potential applications of
22 that technology." (As read.)

23 If it should be that those tests you're
24 talking about were for Lapomarde, would you still make
25 that statement involving Williamson and Davis at that

1 point? Rexham, in other words?

20:11

2 MR. PINKERTON: Objection to form. I

3 don't -- it's vague and ambiguous --

4 MR. HARRIS: I can restate it --

5 MR. PINKERTON: Yeah..

6 MR. HARRIS: -- it just takes more time.

7 MR. PINKERTON: Okay..

8 A. Okay. Would you?

9 MR. PINKERTON: It's just vague.

10 Q. (BY MR. HARRIS) Sure.

11 If the October 1994 PRI tests were

12 actually at the suggestion of John Lapomarde or

13 Rexham --

14 A. Right.

15 Q. -- would you still hang on to the language

20:12

16 "Williamson and Davis" in the fourth line of that

17 sentence under 26?

18 MR. PINKERTON: Object to the form of the

19 question.

20 A. I don't understand what you're saying. I

20:12

21 really don't.

22 Q. (BY MR. HARRIS) Well, did Williamson and

23 Davis direct the Rexham tests?

24 A. No.

25 Q. They weren't there, even, were they?

20:12

1 A. No.

20:

2 Q. Okay. And so --

3 A. But we --

4 Q. -- if the Rexham test was the test you're
5 talking about in October, there's just some kind of
6 confusion, isn't there?

20:12

7 MR. PINKERTON: Object to the form.

8 A. We're not talking about the same thing at all.

9 Q. (BY MR. HARRIS) Well, what are you talking
10 about?

20:12

11 A. What I'm talking about is a situation where
12 the Williamson test, if you like, and what we did for
13 Lapomarde was for a different -- for a totally different
14 application to that of Williamson. And therefore, the
15 two cannot be at all intermixed.

20:13

16 How can you -- how can you intermix the
17 two situations? They're not related. The only
18 relationship --

19 Q. What --

20 A. -- is that it's flexible. End of story.

20:13

21 Q. What is the statement that you make here in
22 that sentence, then, where you say, "did not illustrate
23 potential applications of that technology"?

24 I believe you're saying that right here.

25 I believe you're saying that the test that was done in

20:1

1 October --

20:13

2 A. That's correct, it didn't. It didn't.

3 Q. -- didn't illustrate it, but you're saying it
4 was done at the suggestion of Williamson and Davis.

5 A. No, no, no. I don't think I'm saying that.

20:13

6 Q. Well, would you take a look?

7 MR. PINKERTON: Counsel, this relates to
8 an allegation in the Complaint, and I'm going to object
9 to the form of the question.

10 MR. HARRIS: Okay.

20:13

11 MR. PINKERTON: In terms of has to do,
12 obviously, with these paragraphs of the Complaint.
13 That's what's referred to, and I think it's improper to
14 ask him about it without showing him what statement is
15 in the Complaint.

20:14

16 MR. HARRIS: Well, I'm willing to take --
17 you know we are going to have to take more time, so I'm
18 certainly willing to take time, too.

19 MR. PINKERTON: Okay. I think it's
20 appropriate. I -- I -- because it's confusing to what
21 we're talking about.

20:14

22 MR. HARRIS: Well, I intended to bring
23 it, but I guess I'm just too weak to carry it.

24 MR. PINKERTON: Paper's heavy.

25 MR. HARRIS: Uh-huh.

20:14

1 MR. HARRIS: Have you got one easy? 20

2 MR. PINKERTON: I don't have one easy,
3 Bill.

4 MR. HARRIS: Well, if it takes a long
5 time, I'm not very interested in it. And if we're
6 having to -- 20:15

7 MR. PINKERTON: There ain't nothing easy
8 right now.

9 MR. HARRIS: -- if we're having to go on
10 anyway, I can always come to that with a copy of it. 20:15

11 MR. PINKERTON: Let's do that. That's
12 appropriate.

13 MR. HARRIS: Well, let me mark it.

14 MR. PINKERTON: That's appropriate to
15 reserve that. 20:15

16 MR. HARRIS: I'm just going to fence off
17 all of 26 here.

18 MR. PINKERTON: That's fair enough.

19 MR. HARRIS: While I'm not sure you're
20 right, I understand you've got a right to make that
21 objection for me to consider, at least, and the court to
22 consider. 20:15

23 MR. PINKERTON: Thank you.

24 MR. HARRIS: (Counsel reviews documents.)

25 (Sotto voce discussion.) 20:

1 MR. PINKERTON: It's marked as an exhibit
2 here.. It's 3.

20:16

3 MR. WILSON: Okay. Yeah, I've got it.

4 MR. HARRIS: While we're on the record,
5 as I understand, you were going to send us a complete
6 copy of the Day-Timer, and we appreciate that very much.

20:16

7 MR. PINKERTON: For the month of -- are
8 you talking about for July?

9 MR. HARRIS: Two years.

10 MR. PINKERTON: Two years. Well, no,
11 we've provided you copies of everything.

20:17

12 MR. HARRIS: Well, then that's fine if
13 it's -- whatever -- whatever day there is that's -- we
14 don't have, we want.

15 MR. WILSON: The copies you provided us
16 is missing a lot of days. It's not just the one month.
17 Each month is missing some dates.

20:17

18 MR. HARRIS: We realize some of them may
19 be blank.

20 MR. PINKERTON: He explained they're
21 blank. So you want -- you want to --

22 THE WITNESS: They want all of them.

23 MR. PINKERTON: Yeah. Do you still have
24 the --

25 THE WITNESS: (Shaking head negatively.)

1 MR. PINKERTON: I've got the originals?

2 THE WITNESS: You've got --

3 MR. PINKERTON: I thought we sent those
4 back.

5 THE WITNESS: -- the Day-Timers. 20:17

6 MR. PINKERTON: We sent those back. I'm
7 sure we did.

8 MR. HARRIS: I don't want --

9 MR. PINKERTON: I'm sure we did. I'm
10 sure we did, but that's -- that's no problem. The thing
11 we'd like -- one of the things we'd like to request is,
12 if there is, in fact, a back side to Exhibit --

13 MR. WILSON: Yeah. I'll look for it.

14 MR. PINKERTON: -- 17, is that the one --

15 MR. WILSON: Yeah.

16 MR. PINKERTON: We would like that, like
17 a copy of that.

18 MR. WILSON: Yeah. I was going to say,
19 on the calendar, can we get the -- you know, on the
20 Day-Timer, it's got both like a work page, note page,
21 and a schedule page. I'd like both those pages on every
22 day. 20:18

23 MR. PINKERTON: Isn't that what we --
24 didn't we shoot that?

25 THE WITNESS: You know what, we'll send 20:19

1 you them, you can copy them.

20:18

2 MR. WILSON: That --- that'll be fine.

3 We'll do it at our expense.

4 MR. PINKERTON: That's fine.

5 THE WITNESS: That would suit me fine.

20:18

6 MR. WILSON: Okay. Thank you.

7 THE WITNESS: Not a problem. Would you
8 give me a card so that I know where to send them?

9 MR. WILSON: I'll write it down for you.

10 (Sotto voce discussion.)

20:18

11 Q. (BY MR. HARRIS) (Counsel reviews documents.)

12 Under paragraph 9 of your Supplemental Declaration,
13 which I take it to be Exhibit 3, I'd like for you to
14 look at paragraph 9.

15 A. (Witness reviews documents.) Okay.

20:21

16 Q. When you say, "I notice that the priority date
17 of EP 741 025 A3, Exhibit B hereto -- hereto, is May 4,
18 1995, which is consistent with my recollection that
19 Printing Research filed a patent application on the
20 cantilever device, or a Ferris wheel, in the spring of
21 1995," where did you get this priority date? How did
22 you get it, the one in the first line that's referred
23 to?

20:22

24 A. I would guess with the -- with the information
25 that was sent to me by Printing Research. I assume.

20:22

1 Q. By Printing Research?

2 A. Uh-huh. Since I was named on the --

3 Q. Oh, okay --

4 A. Since I was named on --

5 Q. -- do you think so?

6 A. Well, I'm guessing so.

7 Q. Did you and Mr. Falk and/or Mr. Pinkerton
8 discuss that?

9 A. We may have done.

10 Q. Did you discuss that point?

11 A. I -- I don't recall.

12 Q. Whether you did or not?

13 A. I don't recall whether we did or not.

14 (Sotto voce discussion.)

15 Q. (BY MR. HARRIS) In the Supplemental
16 Declaration, Exhibit 3 --

17 A. Uh-huh.

18 Q. -- page 3, paragraph 9, starting on the fifth
19 line -- oops, the fourth line, "I did not intend to
20 claim that Davis-Williamson process, and to the best of
21 my knowledge, no one at PRI indicated in 1995 they
22 intended to claim the Davis-Williamson 363 process.
23 Those 363 process aspects taught in EP 741 025 A3 -- as
24 opposed to the teachings concerning the cantilever
25 device or Ferris wheel -- came from the discussions with

1 Bill Davis and/or Jesse Williamson indicated the above,
2 starting in August 1994."

20:24

3 I -- I find that complex. Could you
4 simplify or make some comment on what that means?

5 A. All that means is that in -- when we -- we
6 were -- I was asked, we were brought in to write up a --
7 an application, patent application, it was my
8 understanding that we were applying for an application
9 for the Ferris wheel device.

20:24

10 And I had no forethought relative to the
11 actual process applications that were being taught
12 and/or filed by Williamson Printing.

20:25

13 Q. Did it come to your attention, then, at some
14 time by some means that this -- the May 4th U.S.
15 application of Printing Research for an EP 741 025 A3,
16 did it come to your attention at some time that there
17 was some subject matter in it that you considered the
18 teachings or information from discussions with Bill
19 Davis and/or Jesse Williamson?

20:25

20 A. I can't say without relooking at that to -- to
21 be sure.

20:26

22 Q. To begin with --

23 A. But I think that's true. I think --

24 Q. -- would you relook at those lines just to be
25 sure. I had a little trouble with them.

20:26

1 A. Yeah. But I -- I'd have to relook at the -- 20
2 at the exhibit to -- to be sure.

3 Q. Uh-huh.

4 A. But that is clearly what I'm saying.

5 Q. Pretty sure whether there's anything in there 20:26
6 at all or not; is that right?

7 A. At this stage, yeah. It's --

8 Q. And then backing off of that --

9 A. -- 8:30 at night.

10 Q. Backing off from that, you're not too sure one 20:26
11 way or another about whether some of the 363 information
12 was included?

13 MR. PINKERTON: Objection to the form of
14 the question.

15 Q. (BY MR. HARRIS) I believe you understand the 20:27
16 question.

17 A. I believe I understand the question.

18 You -- you could make that connotation.

19 Q. But you're just not -- you can't put your
20 thumb on how much or what, is that it? 20:27

21 A. Yeah, because I need -- I'd need the documents
22 once again in front of me to -- to be sure.

23 MR. HARRIS: 29? I'm not quitting. I'm
24 just -- I suggest we go.

25 MR. PINKERTON: Yeah, it's a good time to 20:28

1 break.

20:27

2 MR. HARRIS: Yeah, we'll break.

3 MR. PINKERTON: Good time to break.

4 We'll reserve -- reserve --

5 MR. HARRIS: I -- I -- I certainly won't
6 be long when we reconvene.

20:27

7 MR. PINKERTON: We're going to agree to
8 reserve my redirect and your recross.

9 MR. JESSE WILLIAMSON: Are we quitting?

10 MR. PINKERTON: Excuse me?

11 MR. JESSE WILLIAMSON: We want to finish.
12 Why don't we finish this thing?

13 MR. PINKERTON: It's impossible to do.
14 It's impossible to do --

15 MR. JESSE WILLIAMSON: We'll stay here
16 all night. We want to finish the thing.

17 MR. PINKERTON: Well, we've got a -- we
18 have a court reporter here who can't stay.

19 MR. JESSE WILLIAMSON: Well, maybe she
20 needs to find someone to replace her..

21 MR. PINKERTON: We've already been
22 through that. She called the company, and they don't
23 have a replacement for her. And that's -- we'd already
24 figured that out before.

25 MR. JESSE WILLIAMSON: Does she have to

20:28

1 leave?

2 MR. PINKERTON: Excuse me?

3 MR. JESSE WILLIAMSON: Does she have to
4 leave?

5 MR. HARRIS: Yeah. She has a daughter
6 she's got to pick up.

7 THE VIDEOGRAPHER: Ready to go off the
8 record now?

9 MR. PINKERTON: Yeah.

10 THE VIDEOGRAPHER: The time a 8:28 p.m.
11 We're off the record.

12 (Deposition adjourned at 8:28 p.m.)

13 (Deposition Exhibit No. 20 marked.)

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20:28

20:28

1 STATE OF TEXAS)

2 COUNTY OF DALLAS)

3 I, Tami L. Slater, Certified Shorthand Reporter,
4 duly qualified in and for the State of Texas, do hereby
5 certify that, pursuant to the agreement hereinbefore set
6 forth, there came before me JOHN W. BIRD who was by me
7 duly sworn to testify the truth, the whole truth and
8 nothing but the truth of his knowledge concerning the
9 matters in controversy in this case; and that he was
10 thereupon carefully examined upon his oath and his
11 examination reduced to typewriting by me or under my
12 supervision; that the deposition is a true record of the
13 testimony given by the witness, same to be sworn and
14 subscribed by said witness before any Notary Public,
15 pursuant to the agreement of the parties.

16 I further certify that I am neither attorney nor
17 counsel for nor related to or employed by any of the
18 parties to the action in which this deposition is taken,
19 and further that I am not a relative or employee of any
20 attorney or counsel employed by the parties hereto or
21 financially interested in the action.

22 In witness thereof, I have hereunto set my hand
23 this 18th day of September, 2000.

24

25

Tami L. Slater

Tami L. Slater, Certified Shorthand
Reporter in and for the State of Texas.
Certificate No. 7383, expires December
31, 2001. 5050 Quorum Drive, Suite 700,
Dallas, Texas 75240. (214) 341-4000.

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CHANGES AND SIGNATURE

Reference No. _____

[Disregard if signature waived]

PAGE LINE CHANGE

REASON

I, _____, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

Signature of Witness

THE STATE OF _____

COUNTY OF _____

Before me, _____ (insert name of officer), on this day personally appeared _____, known to me (or proved to me on the oath of _____ or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this ____ day of _____, ____.

Notary Public in and for the State of _____

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[5] 77:20 98:12,13 133:9,12 [sic] [36] 12:20 22:16 24:25 73:8 86:7 88:5,18 90:20 92:5 99:24 100:2 101:17 115:22 117:8 118:11,12 119:11,11 139:3 168:22 169:21 197:23,23 199:8,12 208:2 217:11,18 220:7,25 230:8 233:2 258:12 262:5 274:25 284:9
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THE OFFICE

EXHIBITS

**CIVIL ACTION FILE NO. 3-99CV1154-M
PRINTING RESEARCH, INC., ET AL.**

VS.

WILLIAMSON PRINTING CORPORATION, ET AL.

EXHIBIT NOS. 1 TO 20

FOR THE DEPOSITION OF JOHN W. BIRD

September 12, 2000

MBA Reporting Services, Inc. * Dallas, Texas
(214) 341-4000

ORIGINAL

[illegible]

Prior to 1982 all employment experience was in the UK

- 1977 - 1982 Colordy Ltd. (Spectral Ltd., and now owned by Nordson)
Partner & Technical Sales Director
- Founding partner for UV and IR drying systems
 - Directed development and sales marketing efforts for drying systems from \$75K in 1977 to \$1.5M in 1981
- 1974 - 1977 Print Dimensions Ltd.
Technical and Sales Director
- Developed and marketed proprietary three-dimensional vacuum-formed plastic products
- 1970 - 1974 McCorquodale Plastics/Associated Trapinex Ltd.
Works Manager
- Managed production of litho, screen-printing and plastic laminating in the manufacture of credit cards and plastic point of purchase display products
- 1966 - 1970 Sericol Group Ltd.
Development Chemist
- Developed various ink systems for the screen-printing industry
 - Developed coating methods and photographic film for the screen printing industry
- 1960 - 1965 Ault & Wiborg Ltd.
Development Chemist
- Manufactured ink for litho and developed some of the first web offset heatset inks in the UK

EDUCATION: 1960 - 1965 London College of Printing
 1956 - 1960 St. Gerard's RC Secondary School

ACHIEVEMENTS (US):

Nine patents issued, two GATF (Graphic Arts Technical Foundation) Intertech Awards, Special Mention AICC Technical Merit Award for HV Drying. Articles published in "Boxboard Containers", "Graphic Arts Monthly", "TAPPI Journal" and "GATF Technical Manual". Introduction and development coating litho and flexo technical presentations made to AICC, GATF, TAPPI, University of Wisconsin and various Litho Clubs

ACHIEVEMENTS (UK):

City and Guilds Printing Ink Technicians Certificate, Member Institute of Printing (M.I.O.P.), Chairman Screen Printers Association, Six Patents Issued, Articles published in "Professional Printer", "Folding Carton", "British Printing and Screen Printing" trade magazines, Introduction and Development of short-wave infrared and "Cold" UV Drying Systems

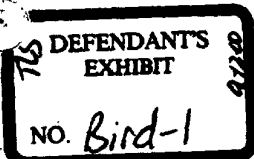
PERSONAL:

Date of birth August 10, 1945 Married with three children (ages 33, 20, and 26).

CONFIDENTIAL
SUBJECT TO
PROTECTIVE ORDER

W000944

INDUSTRY REFERENCES AVAILABLE UPON REQUEST.



THESE THESE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:	§
BILL L. DAVIS and JESSE S. WILLIAMSON	§
	§
For Reissue of U. S. Patent 5,630,363	§ Group Art Unit: 2854
Issued May 20, 1997	§
Serial No. 08/515,097	§
	§
Filing Date: May 20, 1999 (Reissue)	§ Examiner: _____
	§
Serial No.: 09/315,796 (Reissue)	§
	§
For: COMBINED LITHOGRAPHIC/ FLEXOGRAPHIC PRINTING APPARATUS AND PROCESS	§
	§

DECLARATION OF JOHN W. BIRD

TO: The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

SIR:

I, John W. Bird, declare on my oath the following:

1. I am over twenty-one (21) years of age, have never been convicted of a felony, and am competent to make this testimony. I am President of JB Machinery Incorporated, 9 Sasqua Trail, Weston, CT 06883. My *curriculum vitae* is attached hereto as Exhibit 1.

2. I have read U.S. Patent 5,630,363 to Davis and Williamson and am familiar with its specification, drawings, and claims. A copy of the '363 patent is attached hereto as Exhibit 2.

3. I am aware that Davis and Williamson filed a reissue application seeking to make corrections in some of the claims of, and also seeking to add new claims to, the '363 patent, specifically claims 42-87. A copy of what I understand to be the reissue claims, which I have read, is attached as Exhibit 3.

W000931

DECLARATION OF JOHN W. BIRD

CONFIDENTIAL
SUBJECT TO
PROTECTIVE ORDER

Page 1

DEFENDANT'S
EXHIBIT

NO. Bird-2

3. For the reasons that follow, and in view of my personal knowledge of the events which occurred at Printing Research, Inc. ("PRI") and Williamson Printing Corporation ("WPC") between 1991 and 1995, I believe that Bill Davis and Jesse Williamson are the first, true and correct inventors of the claimed invention of the '363 patent, as well as the subject matter of their reissue claims. Furthermore, based on my more than 35 years of experience in the printing industry, I believe that the printing methods and presses claimed in the '363 patent, as well as in the reissue claims, were a significant advance in the mid-1990s.

4. I am aware that, on or about May 20, 1999, Plaintiffs Howard W. DeMoore and PRI filed a lawsuit in the Northern District of Texas styled *Printing Research, Inc. v Williamson Printing Corporation, Bill L. Davis and Jesse S. Williamson*, Civil Action No. 3:99CV1154-D (Exhibit 4). In paragraph 10 of Plaintiff's Original Complaint, it is alleged that Howard W. DeMoore is the sole inventor of the claimed invention of the '363 patent, and that DeMoore himself conceived and developed a single-pass printing process "for selectively applying printing inks and coatings to paper and other substrates, in which one of the stations utilizes a flexographic process and at least one of the successive stations utilizes a lithographic process." These allegations are each false. Based upon my personal experience obtained while working at PRI, these allegations as well as similar allegations in the Complaint are false: Howard W. DeMoore did not conceive or reduce to practice the process invention broadly characterized as combining a flexographic step with downstream offset lithography. That simply did not happen in 1994 or 1995 or before.

5. To the best of my knowledge, there are no 1991-1995 conception memoranda, invention memoranda, notes, e-mails or memoranda of a conception of the use of a flexographic station prior to offset lithography authored by DeMoore, me or Rendleman or anyone else at PRI.

6. I was employed by PRI from early 1991 until early January 1997 when I was terminated as an employee. I was exclusively retained as a manufacturer's representative for flexographic and converting products in June 1997. I was terminated still again as a sales agent in March 1998, and recently I settled a lawsuit with PRI who sued me and my new company (JB

DECLASSIFIED

Machinery) for alleged trade dress infringement and copyright infringement over my company's new brochures concerning drying equipment. Prior to early 1991, I was a principal (President and CEO) in Birow, Incorporated, located at 8 Clover Lane, Westport, Connecticut 06880. Shortly after arriving at PRI in early 1991, as part of the negotiations with PRI, I was required to grant PRI an exclusive license in Birow's proprietary methods and apparatus developed by me. See Exhibit 5. That license included U.S. Patent Nos. 4,796,556 (Exhibit 6), 4,841,903 (Exhibit 7), 4,895,070 (Exhibit 8), and 4,939,992 (Exhibit 9), as well as a patent application, Serial Number 07/336,435, filed the same day as the application leading to the '992 patent, which I believe never issued. My experience that I brought to PRI was in the graphic arts, lithography, flexography, screen printing and coating applications, including the construction of coaters and driers. As of 1991, I do not recall flexographic applications existing in the offset lithography art other than end-of-press specialized applications. The arts were different. Flexography was used in the manufacture of boxes, bags and labels. I also brought with me to PRI a retractable, end-of-press coater, or "rack-back" coater as the term is often used in the industry. As I recall, we sold very few of these at PRI. A copy of a PRI brochure (printed about 1994) depicting this technology, which I brought to PRI, is attached hereto as Exhibit 10. At the time I arrived at PRI in early 1991, PRI was developing the so-called "E-Z" coater, which was developed in the early 1990s, and which used a chambered doctor system, the subject of several PRI patents (U.S. Patent Nos. 5,176,077, 5,207,159, and 5,335,596, attached hereto in a group as Exhibit 11). I believe I was the only person at PRI in 1991-1995 that had any significant experience in flexography. In hindsight, the only people anywhere in the world which would have had the motivation in 1994-1995 to go "upstream" with flexography in an offset lithography press would be a printer or a manufacturer of inks or coating, probably metallic inks or coatings. A small manufacturer of auxiliary equipment for presses, such as PRI, in my opinion would not have such motivation other than to produce a product in response to an order.

7. When I joined PRI in early 1991, the principal efforts of PRI were involved in the field of anti-marking technology. The company was heavily financially dependent on selling

1
2 specially-tailored sheets of cheesecloth as an anti-marking tool (U.S. Patent No. 4,402,267,
3 Exhibit 26 hereto), the so-called "Superblue™" netting, to expire in September 6, 2000. I feel
4 my contribution to PRI was primarily in the development of drying equipment, including end-of-
5 press and interstation drying equipment and to introduce them to a retractable or "rack-back"
6 coater.

7
8 8. In February 1991, at about the time I arrived at PRI, Howard DeMoore filed a
9 lawsuit against WPC, styled *Printing Research, Inc. and Howard W. DeMoore v Williamson*
10 *Printing Corporation, Jerry B. Williamson, Jesse Williamson and Buford Roy Williams*, Civil
11 Action No. 3:91-CV-0389-X (Northern District of Texas, Dallas Division), which was settled
12 on or about October 1, 1993. The basic terms of the settlement had been worked out several
13 months before October 1, 1993 (actually sometime in May 1993, as I recall), and accordingly,
14 I started approaching Williamson in the early summer of 1993 to start purchasing PRI's products
15 (see letter of June 25, 1993, authored by me, Exhibit 12). On several occasions in late 1993 and
16 the first half of 1994, I dropped by the offices of WPC, providing brochures and handouts of PRI
17 products I thought WPC might possibly be interested in.

18
19 9. I was aware in 1993 and 1994 that WPC was seeking to replace its aging printing
20 presses with new, state-of-the art presses, and I was aware by July of 1994 WPC had more or less
21 decided to go with Heidelberg U.S.A., Inc. and purchased several different presses, to be
22 installed starting in late 1994 and running well into 1995. This presented PRI, in my opinion,
23 with a significant opportunity, as PRI sold good auxiliary drying equipment. I was a major
24 contributor at PRI into the invention, research and developing of drying equipment.

25
26 10. I became aware from Steven Baker, one of PRI's salesmen, upon his return in July
27 1994 from Atlanta, Georgia, of a meeting between Steven Baker, Jesse Williamson and Bill
28 Davis of WPC. Steven Baker told me of a July 1994 meeting in an Atlanta restaurant in which
29 Davis and Williamson told him (Baker), in confidence, of Davis and Williamson's intent to
30 improve the so-called "WIMS" metallic printing process of WPC, U.S. Patent No. 5,370,976
31 (Exhibit 13), of which at the time I had some familiarity with the process, but not a lot. Baker

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DECLARATION OF JOHN W. BIRD

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told me in July 1994 that WPC had already committed orally to purchasing dryer equipment from PRI for the line of Heidelberg printing presses, and that Baker had shown Jesse Williamson and Bill Davis a PRI-constructed HV interstation dryer at James River carton printing plant in ~~NEWMAN~~ ^{NEWMAN}, Georgia, and that Baker had been told of a pending WPC patent application for the "WIMS" process. Baker told me that as part of these discussions, they confided in Baker that they wanted to use flexography at a station they designated "up-stream" -- perhaps even the first station -- of one or more offset lithography presses that they would receive from Heidelberg. Baker mentioned to me at the time in July 1994 that they mentioned several ways in which this could be done -- most preferably, a retractable or "rack-back" mechanism, which would have to be modified for "upstream" use. Baker told me that with respect to the "rack-back" option told him by Davis and Williamson, they would have to have the retractable mechanism have an anilox roller, a chambered doctor, and the use of state-of-the-art flexographic plates. Baker told me that Davis and Williamson indicated they had just seen the use of some of these flexographic (BASF) plates in Germany, and that a number of companies sold high-resolution plates which would work in their new process. Baker told me that Davis and Williamson inquired whether PRI was interested in supplying these types of "rack-back" or retractable mechanisms, and that he (Baker) told Williamson and Davis of the PRI "rack-back" and provided a brochure, Exhibit 10. Effertz Tool Company, Franklin Lakes, New Jersey, made these "rack-backs" for me while at Birow, Incorporated, and Effertz continued to make these "rack-backs" for PRI for the few units PRI sold when I brought the technology to Dallas.

11. Pursuant to what I understood to be an oral agreement in July to purchase equipment from PRI, I passed along product information in detailed form to WPC regarding the drying equipment WPC had promised to purchase from PRI on August 31, 1994 (Exhibit 14). WPC had signed an agreement on October 1, 1993 with PRI to purchase a significant amount of drying equipment, including interstation drying equipment (note my memorandum of September 6, 1994 (Exhibit 15), and Howard DeMoore's acknowledgment on the very same day that the terms of the Settlement Agreement had been complied with contingent on completion

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of the purchase (Exhibit 16). I supplied WPC with a final purchase agreement schedule on September 15, 1994 (Exhibit 17).

12. Steve Baker also told me on his return to Dallas in July 1994 that Davis and Williamson wanted some experiments run at PRI using my "rack-back" (note again brochure, Exhibit 10). I recall such experiments at PRI conducted in the fall of 1994. These tests were done on PRI's two-color Heidelberg R&D press utilizing an existing "rack back" coater of my design at the end of the press, at the direction of WPC, with WPC supplying most of the flexographic inks and the flexographic plates for the experiments. The tests were chiefly designed to determine the resolution that was possible with the PRI coater, and supplied plates and coatings. No one-pass tests of the claimed '363 process were done in the fall at PRI. In fact, to the best of my knowledge, no tests were ever conducted at PRI of the '363 invention, only at WPC. In fact, to the best of my knowledge, no off-line simulated tests (flexography done first with a second pass of performing offset lithography in a pass-through) were ever performed at PRI. I never collaborated with Bill Davis or Jesse Williamson or anyone else at Williamson concerning the '363 invention in 1994 or 1995. Again, PRI, to the best of my knowledge, does not have any late 1994 or early 1995 record, notebooks, e-mails or memoranda concerning any conception by PRI of the '363 claimed invention.

13. I suggested that my colleagues start working toward an acceptable flexographic printer coater for use with the Davis-Williamson '363 process. In the late fall of 1994, pursuant to my recommendations, PRI did start working on what was termed in-house as the "Rendleman coater," the first prototype being a cantilevered, "short-arm" device that would fit on an end-of-press Heidelberg-manufactured coating tower of the first Heidelberg press to arrive at Williamson - the so-called "7 color Heidelberg CD." The purpose of our development of the device was clear: we did this to try to get all of WPC's business. We had no firm orders from them for this equipment. That prototype was actually not installed at WPC until late February 1995. The following documents illustrate the timing of development of this short-armed device, which was not intended for interstation deployment, but for use on the low profile of the tower

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coater with the intention of going upstream at a later date. On December 16, 1994, I wrote a memorandum to Bill Davis of Williamson (Exhibit 18), in which construction of the proposed short-arm device was not even mentioned. As of that time, only parts of it had been developed by Ron Rendleman, and sat on the floor at PRI. I did not mention the "short arm" device in the December letter. Steve Baker did not even mention the short-arm prototype in his late January 1995 letter to Jesse Williamson (Exhibit 19). Had PRI had the prototype near ready for installation, it would have been mentioned in a letter. In my opinion, the time to develop short-arm prototype of the "Rendleman coater," which was a crude, manually operated device, which took more than 90 days, taken even at a causal pace. Working back from a late February installation, it is clear work on the "short-arm" experimental coater started no earlier than December 1994, which is consistent with my recollection. The "short-arm" device was never intended to perform as an interstation flexographic coater, and could not have. The reason why PRI started working on an experimental, cantilevered end-of-press printer-coater, rather than an interstation unit to perform the '363 process, was that in December 1994 PRI had no commitment from WPC to order such devices, there was no established market for an interstation, and no one at PRI appreciated, much less knew of the details of the '363 inventive process outside of the disclosure made to Baker.

14. I recall that in January 1995 a meeting took place in Conference Room "E" at WPC attended by Steve Baker, me, Bill Davis and Jesse Williamson. At this meeting, Jesse Williamson told Steve Baker and me that he (Williamson) and Davis were going to file for a patent on their new process. I recall commenting to Steve Baker going back in the car to the offices at PRI that I thought it was amazing that anyone could patent a process apart from the equipment – the so-called "iron," which is a term used by many people in our business. I thought it was a brilliant move, but did not know whether such patenting could take place. I had several patents issue to me as of January 1995 (Exhibits 6-9), but didn't know that such a process could be patented, however meritorious

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15. I recall another meeting which took place on February 11, 1995. Jesse Williamson and Bill Davis told me that they had gone to Germany to the Heidelberg Company. They informed me in confidence that they had had tests conducted on a simulated reduction-to-practice of the new process to be patented, using state-of-the-art BASF plates at the Heidelberg Company with German and British flexographic inks. They indicated they had compared in Germany the results of a gold and silver Rolex advertisement they had previously made using the "ordinary" WIMS process, with a simulation of the new process, using multiple passes comprising flexography performed first, followed by offset lithography. They indicated to me on February 11, 1995 that the German tests confirmed the advantages and benefits of their new process. Accordingly, they committed not only to installing the existing short-arm prototype still in production at PRI, but for PRI to install a long-arm device for interstation use at WPC if PRI could come up with a workable design. Accordingly, I sent them a confirmatory memorandum on February 16, 1995 (Exhibit 20), indicating that the "short-arm" end-of-press unit was to be provided for no cost. We actually installed the "short-arm" unit at the end of February, 1995. We did not even have a sketch of the interstation coater to provide Williamson until March of 1995 -- let alone completed blueprints -- and our development of the interstation coater was just a concept in late April 1995 when we had brochures printed in gold and silver -- not even with the improved process (Exhibit 21). We provided an incomplete sketch of the prototype interstation "Rendleman coater" to Bill Davis in March 1995, which was apparently completed by Davis and Williamson, modified and put in the '363 process as Fig. 2. The first of the interstation units was not installed until late August, or early September 1995, as I recall.

16. In late March of 1995 I observed as part of a team of employees at PRI a simulated reduction of the '363 process using the "short-arm" device -- i.e., "offline" (as Bill Davis and Jesse Williamson called it) -- for a customer in Washington, D.C. (Brian Liester, Hi Fi Color, Mills Davis)). The simulated reduction was conducted at WPC, using state-of-the-art plates and flexographic inks, under the direction of Bill Davis. The work done for Liester later won an industry prize in the fall of 1995 (PLA's Premier Print Awards), at Chicago, Illinois. To

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the best of my knowledge, no one at PRI ever claimed that PRI should share in the recognition of that prize.

17. In March 1995, I test marketed a closed doctor blade chamber recirculation system at a graphics show held biannually in Charlotte, NC. John Lapomarde (retired) previously with Rexham Corporation, had purchased such a unit. PRI sold a system to Lapomarde for installation at the end of his Komori multi-color press, replacing an application roller with an anilox roller, and installing PRI's recirculation closed doctor blade system, on or about mid-to-late 1994. Prior to the installation, we ran tests at PRI to apply metallics and coating using the retractable coater at the end of PRI's two-color Heidelberg press. Howard DeMoore and Ron Rendleman had no input into the tests or our process. Sometime in the spring of 1995 Steve Garner and I showed Jesse Williamson the flexo-applied gold sheets shortly thereafter. That was my first inkling of the potential and subsequent idea to install such device upstream on a litho press. I do not recall writing any memorandum, notebooks, e-mails, or other writings at PRI describing this concept. I never told anyone at WPC about this process.

18. On May 2, 1995, Steve Garner of PRI and I had a meeting at the offices of WPC with Jerry Williamson, Jesse Williamson, Bill Davis and Woody Dixon. The issue of who had what exclusive rights to what part of these marvelous inventions -- the process and the "Rendleman coater" -- came up for the first time, as I recall. No one from PRI questioned WPC's and Davis' and Williamson's rights to patent the process, if they could -- after all, they had told us about the process back in July 1994. This meeting was the first in a series of meetings to discuss potential exclusivity in WPC to sell the interstation "Rendleman coater" -- which had not even been developed yet, let alone reduced to practice. Our original proposal was that PRI would agree to give WPC some degree of exclusivity on selling the "Rendleman coater" to others. In this same time frame, Ron Rendleman, Howard DeMoore and I signed a U.S. patent application to the "Rendleman coater" on May 4, 1995 or a day before, without telling WPC about it. WPC never claimed in our meetings, or in any letter to PRI to the best of my knowledge that any of their people invented the "Rendleman coater." They just wanted us to

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come up with an interstation coater to perform their process, which we did. They could have gone to any one of a number of manufacturers of end-of-press auxiliary coaters and had these devices modified in a relatively short amount of time for interstation deployment. It is my belief that WPC chose PRI because of the October 1, 1993 settlement agreement. Our May 4, 1995 application, as I understood it then and understand it now – did not claim the '363 process. We could not have claimed the process. First, we were not the inventors of the process, and second, we had insufficient information about conducting the process or the results to be expected to make a good disclosure. As of May 4, 1995, PRI knew that WPC intended to file a process application, if it had not already done so. On May 12, 1995 I wrote a confirmatory letter concerning the first interstation unit for WPC (Exhibit 22), which we promised would arrive in mid-August. In fact, it was several weeks late. The short period of 90 days for completion indicated in my May 12, 1995 letter was a reasonable time for the development and installation WPC could have obtained from any other existing competent manufacturer of an auxiliary unit modified for interstation deployment.

19. After my May 12, 1995 letter, PRI and WPC went back and forth in negotiations concerning the extent to which WPC could sell exclusively the "Rendleman coater." To the best of my knowledge, the parties were close but never reached an agreement in writing. It was a failed cross-licensing negotiation, as the correspondence clearly shows.

20. Four cantilevered "Rendleman coaters" were delivered to WPC. To the best of my knowledge, PRI delivered two interstation "Rendleman coater" units to WPC in 1995-1996, the first of which was delivered in late August 1995. End-of-press units were delivered in late February 1995 (the experimental prototype) and early 1996.

21. To the best of my knowledge, WPC never gave PRI a license to make, use, or sell the "Rendleman coater" for performing interstation '363 process. I am not aware of any effort on the part of PRI to approach WPC at any time for such a '363 process license for PRI or the Hallmark Company or anyone else.

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22. On October 2, 1995 Rendleman, DeMoore and I filed a second, now series of four patent applications directed to interstation use of flexography where the flexographic stations were not auxiliary units, but dedicated – the press units would have to be substantially modified. To the best of my knowledge, this invention was never actually reduced to practice by PRI, let alone sold. Of the four applications filed in the United States, three were carried forward overseas in Europe and Japan, and three have issued in the United States – U.S. Patent Nos. 5,598,777 (Exhibit 23), 5,651,316 (Exhibit 24) and very recently, 5,960,713 (Exhibit 25). These patents have as originally filed the same specification. They have nothing to do with the "Rendleman coater" and did not claim the '363 process.

23. The European counterpart of the May 4, 1995 "Rendleman coater" application was published about 18 months after May 4, 1995, i.e., November 6, 1996. (Note EP 741 025 A3, item (43), Exhibit 27).

24. Accordingly, when I review PRI's complaint, I find no important factual merit to it whatsoever. The invention of the '363 patent has never been installed or used outside of WPC. The "Rendleman coater" was developed at the suggestion of Bill Davis and Jesse Williamson for WPC. Neither Ron Rendleman or I ever developed the '363 process, let alone Howard DeMoore. Had PRI invented the process, PRI would never have taken prototypes outside the offices of PRI or told a customer about it without detailed secrecy agreements. Moreover, in my opinion, PRI had no motivation to come up with the process invention because it did not utilize the WIMS process out of which I believe the '363 patent originated. To the best of knowledge, no one at PRI ever told the '363 invention to Davis and Williamson – the reverse I know occurred in July 1994. PRI did not even have the facilities to reduce the '363 invention to practice – even by simulation. If PRI had the capability to use or to simulate the '363 process, the 1995 brochure would have been printed by the new '363 process. The brochure was not. I know intimately the details of the development of the "Rendleman coater" in 1994-1995, had numerous discussions on a week-to-week basis with Rendleman, kept DeMoore informed as to the progress of its development and the installations of the "short arm" (late February 1995) and

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long-arm devices, and attended the few experiments in the fall of 1994 and the few meetings in 1995 where employees of the two companies met. No experimental or developmental work – no collaboration – occurred between PRI and WPC. Howard DeMoore was never involved in the conception or development of the interstation "Rendleman coater" – he was virtually never in PRI's offices. To the best of my knowledge, the '363 invention is the genius of Jesse Williamson, who is a visionary, and Bill Davis whose printing process experience made it possible to bring it about.

25. Contrary to the allegations in the Complaint, Exhibit 4, Howard DeMoore did not conceive, invent, reduce to practice, or develop the '363 invention, or any individual or team at PRI. I was the one responsible at PRI for trying to get the Hallmark business, and no one at WPC ever told anyone at Hallmark, to the best of my knowledge, not to do business with us. As far as I know, neither I nor Hallmark approached WPC for a license to the '363 technology. The '363 patent issued in May 1997 and of course, such a license would have been appropriate had Hallmark wanted to practice the '363 process.

26. As indicated by the testimony and Exhibits above, DeMoore and PRI have misrepresented the true facts, or are simply mistaken, in paragraphs 10-17 of the Complaint. The errors are too numerous to list here. I will give some examples. First, the tests conducted at PRI in October 1994 were at the suggestion of Williamson and Davis, and did not illustrate "potential applications of that technology." Second, DeMoore did not conceive and begin development of the "Lithoflex system," which is described in the Complaint to include the '363 process. I was not "contacted by Williamson employees" to learn the "Lithoflex" process in November 1994 (paragraph 13). Third, I did not describe the "Lithoflex system" to anyone at Williamson (paragraph 13) let alone "details" (paragraph 14). Fourth, to the best of my knowledge, no written confidentiality agreement was in place (paragraph 15). Fifth, Williamson never agreed to let us test generally the "Rendleman coater" at the offices of WPC (paragraph 16), let alone

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to give PRI a broad-based license to practice the '363 invention. Sixth, the first or "short-arm" experimental "Rendleman coating unit" was delivered in late February 1994, and was end-of-press. Seventh, the first "long-arm" or interstation unit was delivered in late August or early September 1995. Thus, the date given in paragraph 17 of the Complaint of November 1995 is wrong. Again, these are just examples of the misinformation in the Complaint.

The undersigned Declarant stated further that all statements made herein of Declarant's own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.



John W. Bird

12-11-99

Date:

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THE UNIVERSITY OF CHICAGO

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:

BILL L. DAVIS and JESSE S. WILLIAMSON

For Reissue of U. S. Patent 5,630,363

Issued May 20, 1997

Serial No. 08/515,097

Filing Date: May 20, 1999

Serial No.: 09/315,796

For. **COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING
APPARATUS AND PROCESS**

§
§
§
§ Group Art Unit. 2854
§
§
§
§ Examiner: S. Funk
§ J. Hilten
§
§
§
§
§
§
§
§

SUPPLEMENTAL DECLARATION OF JOHN W. BIRD

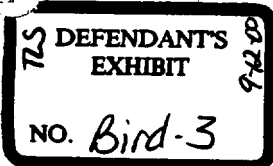
To The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir

1. I am the same John W. Bird who executed a Declaration on December 11, 1999,
and reaffirm the statements made therein.

2 Attached hereto as Exhibit A are notes taken from various days of my monthly
"Pocket Day Timer(s)" for August 1994 through May 2, 1995

- ** (A) August 18, 1994;
- * (B) August 29, 1994;
- (C) September 12, 1994;
- ** (D) October 5, 1994;
- * (E) November 14, 1994;
- * (F) November 15, 1994;
- (G) November 18, 1994;
- ** (H) November 21, 1994;
- (I) December 20, 1994;
- (J) January 4, 1995;
- (K) January 30, 1995;
- ** (L) February 9, 1995;
- (M) February 11, 1995;
- * (N) February 13, 1995;
- (O) February 15, 1995;
- ** (P) February 24, 1995;
- (Q) March 1, 1995;
- * (R) March 7, 1995;



- (S) March 10, 1995
- (T) April 4, 1995
- (U) April 6, 1995;
- (V) April 25, 1995,
- (W) May 2, 1995,

From my day-timer, I recall having a number of meetings at Williamson and, at other times, telephone conferences, sometimes with both Bill Davis and Jesse Williamson (marked "•••" above), and sometimes with Bill Davis (marked "••"), following the revelation to me by Steven Baker of Printing Research, in late July 1994 of the Davis-Williamson process [what became the '363] see paragraph 10 of my prior declaration. The unasterisked pages may have some relevance.

3. In these meetings and conferences, which started on or about August 18, 1994, Bill Davis and/or Jesse Williamson conveyed to me details of the process they wanted implemented by a modified "rack-back" device to go upstream, together with tests they wanted run in the fall of 1994, end-of-press at the two-color experimental test press at Printing Research.

4. Specifically, among other things, they discussed (a) the resolution requirements for their flexographic plates, (b) requirements for anilox rollers, including linescreening count ranges and minimums, the availability of anilox rollers having their desired features, (c) the WIMS process (now U.S. Pat. 5,370,976), (d) the problems with the printing of metallics whites / opaques / encapsulated essences / and various other coatings with WIMS' '976, (e) their desire that the flexographic plates be mounted to the blanket cylinder, (f) their uses of and requirements for flexographic inks, and (g) half-tone printing, all using the new process. These matters were discussed in various meetings in August 1994, and ending, as I recall, in very late 1994.

5. The information which was conveyed to me by Bill Davis and Jesse Williamson, at the dates indicated above, often came in meetings where other printing problems of Williamson Printing Corporation were also discussed, as well as at social outings. I took this information and passed it on to various PRI personnel in order to help them design the coating device suitable to accomplish Davis-Williamson's desired process. At various times, I spoke

with Ron Rendelman, sometimes Howard DeMoore, Steve Garner, Steve Baker and Dave Douglas, although Ron Rendleman was certainly the principle person to whom I discussed Williamson's specific requirements and the information given to me in the meetings indicated above.

6 The entry on February 15, 1995 mentions that UK flexographic metallic coating manufacturer Wolstenholme [International] is going to visit April 1, 1995 "onwards". On April 4, 1995 another entry occurs where metallic coating manufacturer "M.D Both" arrives at Williamson Printing Corporation with both employees Marshall and Glass, M.D. Both are owned by Wolstenholme, and these entries relate to meetings concerned specific requirements for metallic coatings to be used in the new '363 process in order to deliver the highest brilliance.

7. The cantilevered or "ferris wheel" device started to be worked on at PRI, in earnest, in very late 1994 following the discussions from August 1994 - November 1994. I note the frequency of the meetings with both Jesse Williamson and Bill Davis starting on August 18, 1994.

8 My conference with Lapomarde (see my first declaration ¶17) and my "inking" occurred well after I learned of the new Williamson process. By that time I had already seen the result of the Brian Liester "medieval poster" which occurred in March 1995.

9 I notice that the priority date of EP 741 025 A3, Exhibit B hereto, is May 4, 1995, which is consistent with my recollection that Printing Research filed a patent application on the cantilevered device, or "ferris wheel", in the Spring of 1995. I note the priority application is Serial No. 435,798. I did not intend to claim the Davis-Williamson process and to the best of my knowledge, no one at PRI indicated in 1995 they intended to claim the Davis-Williamson '363 process. Those '363 process aspects taught in EP 741 025 A3 - as opposed to the teachings concerning the cantilevered device or "ferris wheel" - came from the discussions with Bill Davis and/or Jesse Williamson indicated above, starting in August 1994.

The undersigned Declarant stated further that all statements made herein of Declarant's own knowledge are true, and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.



John W. Bird

4-3-00

Date:

TOP SECRET

Exhibit "A"

W000884

Wt 33 • Day 230 135 Leth

THURSDAY
AUGUST 18, 1994

DIARY AND WORK RECORD

TIME	NAME	PROJECT	DESCRIPTION
8			
9			
10	cc Williamson	Atg.	
	Bill Davis		
11	Vespe Williamson		
	Bob Enrick		
12	AB II	Within 4 weeks.	
	Remove SB consistent HD/ES.		
1	Arrange meeting	Bill/Bob/Heidi	
	Heidi - Bob - Heidi		
2			
3			
4			
5			

W000885

Wk 35 • Day 241, 124 Left

AUGUST 29, 1994

DIARY AND WORK RECORD

NAME OF PROJECT

DESCRIPTION

TIME

8. Allente! Rodger Meir

② HV/AB II on everything
③ as all others plus UV.

$$\text{Extract} + \text{STC} \neq \text{IR}$$

12

E

2.45 - Williamson
Bill Deans.

3. $102 + L + Y + LX *$
tuple tower

43

5

MONDAY
SEPTEMBER 12, 1994
APPOINTMENTS & SCHEDULED EVENTS

TO BE DONE TODAY (ACTION LIST)

6 color Gesteck
H. Ace

EXPENSE & REIMBURSEMENT RECORD:

W000887

WEDNESDAY

WEDNESDAY		31
Wk 40 • Day 278 87 Left		OCTOBER 5, 1994
DIARY AND WORK RECORD		
8		
9		
10	To Littleton, CO	
11	To Littleton, CO	
12	To Littleton, CO	
1		
2		
3		
4		
5		

NOV 14 1994

MONDAY
NOVEMBER 14, 1994
APPOINTMENTS & SCHEDULED EVENTS

NAME PLACE SUBJECT

TO BE DONE TODAY (ACTION LIST)

Calls - ~~Kearfold~~.

215-343-9300

1. Write to Brian Buntin
2. Sales conference visit
Trade williamson
3. CV extension

EXPENSE & REIMBURSEMENT RECORD:

Bill Davis

W000889

TUESDAY ~~7-5-92~~ 11/15/92
NOVEMBER 15, 1992

APPOINTMENTS & SCHEDULED EVENTS

NAME

PLACE

SUBJECT

Patterson Press
Head Sam S. S. S.

28K-35,000 max
6 camps each side
Kirkpatrick in 25K
TO BE DONE TODAY (ACTION LIST)

ANDERSON

KIRK

RICE

Paisano

Paisano very critical
Growth in 25K
at 15000 - p. can
unmylonce

EXPENSE & REIMBURSEMENT RECORD:

Bill Davis 214-904-2100
Ed / 120000 / 1.10.10

W000890

FRIDAY		30
Wk 46 • Day 322 43 Left		NOVEMBER 18, 1994
DIARY AND WORK RECORD		
TIME	NAME OR PROJECT	DESCRIPTION
8:00	342-4740	
8:00	Terry Steinbeck	
9:00	Kennedy meeting in	
9:00	Tom Scott / Bishop	
9:00	S.3 - 27-25.5	
10:00		
11:00	1.00 Heidelberg USA.	
12:00	2	
1:00	1	
2:00	2	
3:00	3	
4:00	4	
5:00	5	
6:00	6.00	

W000891

MONDAY
NOVEMBER 21, 1994
APPOINTMENTS & SCHEDULED EVENTS

TO BE DONE TODAY (ACTION LIST)

Performance 819,1000

Williamson H.C-90,20

3012 Firmament

750 Package

EXPENSE & REIMBURSEMENT RECORD:

W000892

11/21/94 08:00

MONDAY	
30	
Wh 47 • Day 325 40 Left NOVEMBER 21, 1994	
DIARY AND WORK RECORD	
8	Jack Stoughton
9	Ray Heamers
10	
11	
12	or Bill Davis
1	or Bill Davis / Jesse Williams
2	Tony Binton Training
3	3:00 Tony Binton Performance
4	6:163 - 5-11-94
5	
7:11 E.T.D. JACK STOUGHTON	
FLT #1469 DELTA.	

TUESDAY		31
Wk 51 - Day 354 11 Left		DECEMBER 20, 1994
DIARY AND WORK RECORD		
PS	NAME OR PROJECT	DESCRIPTION
8	WILLIAMSON PTG.	
9		
10		
11		
12		
1		
2		
3		
4		
5		

W000894

TOP SECRET

WEDNESDAY 31	
Wk 51 • Day 355 10 Left DECEMBER 21, 1994	
DIARY AND WORK RECORD	
TIME OF PROJECT	DESCRIPTION
8:	WILLIAMSON PTG.
9:	
10:	
11:	
12:	
1:	
2:	
3:	
4:	
5:	

W000895

WEDNESDAY
JANUARY 4, 1995

DIARY AND WORK RECORD

NAME OR PROJECT	DESCRIPTION
8	
9	
10	
11	
12	
1	SC A-1 Name Fox Mike Curtis
2	Metallic / Pearlescent Hatchmen Stencil
3	Paint Duff Deffen
4	46-438-1622 <u>Metallic</u>
5	

Mo 2 • Day 12 353 Left

THURSDAY
JANUARY 12, 1966

31

DIARY AND WORK RECORD

PS	NAME & PROJECT	DESCRIPTION
8	Kansas City	
9	Burd & Fletcher	^{work} 21st
10	Midland Litho.	cancelled
11		
12		
1		
2	St Louis Litho.	
3	314-352-1300	
4	Ross Klinge	
5	Joe Stein	
6	Very interested w/to	
7	match at least 90% of bronze	
8		
9		
10	Chicago	
11	9:00 Call Frank 301-942-8572	

W000897

TOP SECRET

MONDAY JANUARY 30, 1995		31
Diary and Work Record		
TIME	NAME OF PROJECT	DESCRIPTION
8:00		
9:00		
10:00		
11:00		
12:00		
1:00		
2:30	Williamson	G.
3:00		
4:00		
5:00		

SUNDAY MONDAY TUESDAY WEDNESDAY

LORE FLETCHER

D

5 6 7 8

WILLIAMSON

12 13 14 15

ADVANCE
FIBER

19 20 21 22

ADVANCE
FIBER.

26 27 28

January

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

TOP SECRET

Wt 6 • Day 40, 325 Lb		THURSDAY FEBRUARY 9, 1995	28
DIARY AND WORK RECORD			
HRS	NAME OF PROJECT	DESCRIPTION	T
8	Call Bill Davis / in Williamson	Rob Sweet: quote 2 Lamp	
9		and 4 over 4 'old' cv	
		26" / 26"	
10			
11			
12			
1			
2			
3			
4			
5			

11-28-95

Wk 5 • Day 42 323 Lft		SATURDAY FEBRUARY 11, 1995	28
DIARY AND WORK RECORD			
HR	NAME OR PROJEC	DESCRIPTION	
8			
9		.00 - HD/W. O. Olanston.	
10			
11			
12			
1			
2			
3			
4			
5		30 miles	

TOP SECRET

WEDNESDAY	
FEBRUARY 15, 1995	
28	
Diary and Work Record	
TIME	NAME OR PROJECT DESCRIPTION
8:00	Vent-A-tied order
8:00	Touch pad - tl Van LTL
9:00	Schedule LTL
9:00	MD Both samples
10:00	Walstenholme Visiting April
10:00	amirads
11:00	30 Bill Davis
12:00	
1:00	
2:00	
3:00	
4:00	
5:00	

APPOINTMENTS & SCHEDULED EVENTS

NAME _____

PLACE

Support

TO BE DONE TODAY (ACTION LIST)

NOTE
WITNESSES

www.elsevier.com/locate/jmb

As soon as possible

To whom

RECORDED

TOP SECRET

FRIDAY	
Feb 24, 1995	
28	
DIARY AND WORK RECORD	
NAME OR PROJECT	DESCRIPTION
8	
9	Williamson Ptz
10	Ed Enrick / Bill Davis Tess W. Williamson
11	Drying on impression 14.5mm Nothing showing on densitometer wet trap / dry trap / UV trap
12	varnish definite advantage. Mechanical shutter for edge
1	7 color every unit. Hvon 146 only
2	
3	
4	
5	

Mr 3 - Day 60 305 LHM

WEDNESDAY
MARCH 1, 1995

31

DIARY AND WORK RECORD

TIME	NAME OR PROJECT	DESCRIPTION
8:00		
9:00	Advanced Litho Tubes Donated	
10:00	Needs to look at E2	
11:00	metallic application	
12:00	a s a p	
1:00	He continues to want to	
2:00	work with E2	
3:00	Buckin got great future	
4:00	Terry Meyer - GAC	
5:00	Need to come to a decision	
6:00		
7:00	Ron Grog - Sofars	
8:00	Herdlberg Egypt	
9:00	Heid. 74 is of strong interest	
10:00	over next 12 months	
11:00		
12:00		

W000905

TUESDAY
MARCH 7, 1995
APPOINTMENTS & SCHEDULED EVENTS

Bill Davis

- ① Venta - tool control on delivery?
- ② ~~is~~ complete Wednesday.

TO BE DONE TODAY (ACTION LIST)

D1 Charge.

EXPENSE & REIMBURSEMENT RECORD:

W000906

Wk 10 • Day 68 298 Lm

FRIDAY
MARCH 10, 1995

31

DIARY AND WORK RECORD

HR	NAME OR PROJECT	DESCRIPTION
8	Tim Jensen	
	Bill Davis	
9	Bob Emick	
	Williamson P.C.	
10	delay off get all sheets	
11	H	
12		
1		
2		
3		
4		
5		

W000907

Wk 14 • Day 04, 271 Left

TUESDAY
APRIL 4, 1995

30

DIARY AND WORK RECORD

HRS	NAME OR PROJECT	DESCRIPTION	TIME
8:	WILLIAMSON - MD. BOTH.		
9:	DICK MARSHAL CHUCK GRASS		
10:			
11:			
12:			
1:			
2:			
3:			
4:			
5:			

W000908

TOP SECRET

THURSDAY
APRIL 6, 1995

APPOINTMENTS & SCHEDULED EVENTS

NAME	PLACE	SUBJECT
------	-------	---------

TO BE DONE TODAY (ACTION LIST)

1. Marking - Coating tower
when not coating.
2. Exclusivity - 6 months
USA - 2 months - 2nd.

EXPENSE & REIMBURSEMENT RECORD:

DATE	DESCRIPTION	AMOUNT	REIMBURSED	DATE
------	-------------	--------	------------	------

W000909

THU 30 APR 1995

THURSDAY APRIL 6, 1995		30
DIARY AND WORK RECORD		
TIME	NAME OR PROJECT	DESCRIPTION
8:		400 CFM = 1 ton
9:		
10:		
11:		
12:		What is correct an box
1:		
2:	W. Williamson	Visse Williams
3:	B. Sample	Bill Davis
4:	E. Art Canvas	Jim Johnson
5:		4:30 Jim Johnson

700759 944 546

TUESDAY		30
Wk 17 • Day 115, 250 Lft		APRIL 25, 1995
DIARY AND WORK RECORD		
HRS	NAME OF PROJECT	DESCRIPTION
8:		
9:		
10:	Williamson Ry Co.	
11:	Bill Davis / Tim Johnson	Bob Enck
12:	Casket Leak	
1:	24 hrs in a day center	
2:	Job to run Friday	Testing Thursday
3:	Anchor reading white?	Gold?
4:	Training	
5:	Water. 23.	

TUESDAY
MAY 2, 1995
APPOINTMENTS & SCHEDULED EVENTS

DATE NAME PLACE SUBJECT

TO BE DONE TODAY (ACTION LIST)

1. ~~W. P. Hooper~~ ✓
2. ~~Great Western~~ ✓
3. ~~Graphic Arts~~ ~~Handy~~ / ~~QAT~~
4. ~~Goos Back~~
5. ~~HV~~ ~~Arizona~~ ~~State~~
6. ~~Order~~ ~~gold~~ ~~Bill~~
7. ~~Exclusivity~~
8. ~~Timeline~~ ~~EZ's~~
9. ~~Posters/Post Cards~~

EXPENSE & REIMBURSEMENT RECORD:

Pulled job, fit and problem.
exclusive team -
pinning

DATE		TIME		TUESDAY	
Wk 18 • Day 122, 243 LHR		MAY 2, 1995		30	
DIARY AND WORK RECORD					
NAME OR PROJECT		DESCRIPTION		TIME	
8	1000	label			
9	1000	Greetings			
10	1000	1st Fernal N. America			
11	1000	+ AZ, CO.			
12	1000	at Interstation 90 days			
13	1000	to install 1 and 2 yrs.			
14	1000				
15	1000				
16	1000				
17	1000				
18	1000				
19	1000				
20	1000				
21	1000				
22	1000				
23	1000				
24	1000				
25	1000				
26	1000				
27	1000				
28	1000				
29	1000				
30	1000				
31	1000				
32	1000				
33	1000				
34	1000				
35	1000				
36	1000				
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39	1000				
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42	1000				
43	1000				
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63	1000				
64	1000				
65	1000				
66	1000				
67	1000				
68	1000				
69	1000				
70	1000				
71	1000				
72	1000				
73	1000				
74	1000				
75	1000				
76	1000				
77	1000				
78	1000				
79	1000				
80	1000				
81	1000				
82	1000				
83	1000				
84	1000				
85	1000				
86	1000				
87	1000				
88	1000				
89	1000				
90	1000				
91	1000				
92	1000				
93	1000				
94</					

W000913

THE SECRET

Exhibit "B"

W000914



Office européen des brevets

(11)

EP 0 741 025 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
28.05.1997 Bulletin 1997/22

(51) Int. Cl.⁶: B41F 31/30, B41F 5/24,
B41F 23/08

(43) Date of publication A2:
06.11.1996 Bulletin 1996/45

(21) Application number: 96303138.4

(22) Date of filing: 03.05.1996

(84) Designated Contracting States:
DE FR GB IT SE

(30) Priority: 04.05.1995 US 435798

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(54) Retractable inking/coating apparatus having ferris movement between printing units

(57) A retractable in-line inking/coating apparatus (10) selectively applies either spot or overall ink/coating material to a blanket (B) or flexographic plate (P) on a blanket cylinder (34), or spot or overall ink/coating to a flexographic printing plate (P) on a plate cylinder (32) in a rotary offset printing press (12). The inking/coating apparatus is pivotally mounted on a printing unit (22, 24,

26, 28) or dedicated coating unit, and is extendable into and retractable out of an operative inking/coating position by a carriage assembly (58) which is pivotally coupled to the printing unit. Because of the pivotal support provided by a cantilevered support arm (88, 90), the inking/coating apparatus is extended and retracted through a Ferris wheel arc between adjacent printing units.

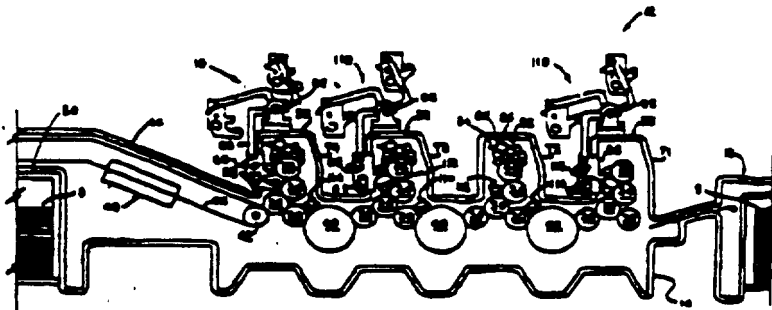


FIG. 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 38 3136

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (ECLA)
X Y	US 4 841 983 A (BIRD) * abstract; claims; figure 1 * ---	1,15-17 4-6,8,9, 13	B41F31/30 B41F5/24 B41F23/08
X	US 5 107 790 A (SLIKER ET AL.) * abstract; claim 1; figures * * column 2, line 9 - line 22 *	1,18	
Y	US 5 335 596 A (DEMOORE ET AL.) * abstract; figures 1-4 * * column 7, line 32 - line 58 *	4,5,8,9	
Y	US 4 617 865 A (SWITALL) * abstract; figures 1-3 * * column 6, line 9 - line 42 *	6	
Y	US 4 825 804 A (DIRICO ET AL.) * abstract; figures 2,3 * * column 3, line 10 - line 21 *	13	
A	EP 0 647 524 A (DEMOORE) * abstract; figures 1,2,5 * * column 4, line 32 - line 40 *	15-22	TECHNICAL FIELD SEARCHED (Int. Cl. 8) B41F
A	PAPIER + KUNSTSTOFF VERARBEITER, vol. 26, no. 6, 1 June 1991, page 129 XP000232825 "LACKIER-AGGREGAT FUER SPEEDMASTER-MASCHINEN" -----	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 March 1997	Examiner Halp10, T
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : bibliographical background O : non-written disclosure P : prior art document		T : theory or principle underlying the invention S : earlier patent document, not published on, or after the filing date D : document cited in the application L : document cited for other reasons # : number of the same patent family, corresponding document	



Office européen des brevets

(11)

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(12)

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(30) Priority: 04.05.1995 US 436798

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(54) Retractable inking/coating apparatus having ferris movement between printing units

(57) A retractable in-line inking/coating apparatus (10) selectively applies either spot or overall inking/coating material to a blanket (B) or flexographic plate (P) on a blanket cylinder (34), or spot or overall inking/coating to a flexographic printing plate (P) on a plate cylinder (32) in a rotary offset printing press (12). The inking/coating apparatus is pivotally mounted on a printing unit (22, 24, 26, 28) or dedicated coating unit, and is extendable into

and retractable out of an operative inking/coating position by a carriage assembly (58) which is pivotally coupled to the printing unit. Because of the pivotal support provided by a cantilevered support arm (88, 90), the inking/coating apparatus is extended and retracted through a Ferris wheel arc between adjacent printing units.

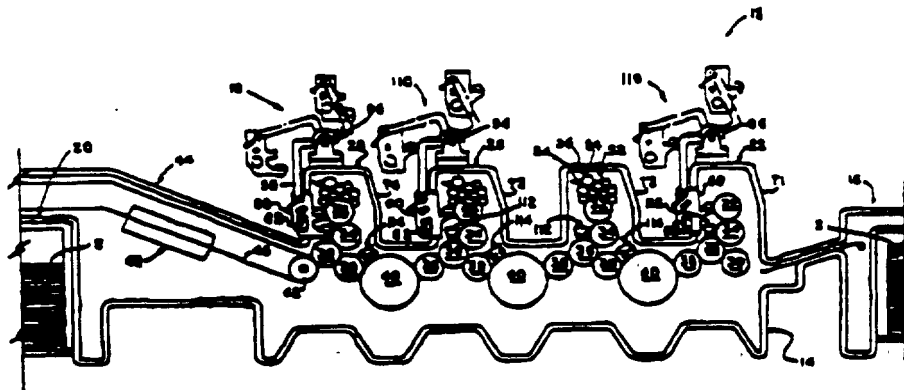


FIG. 1

This invention relates to sheet-fed or web-fed, rotary offset or flexographic printing presses, and more particularly, to a new and improved inking/coating apparatus for the in-line application of printing inks or protective or decorative coatings to sheet or web substrates.

Conventional sheet-fed, rotary offset printing presses typically include one or more printing units through which individual sheets are fed and printed with wet ink. Since the inks used with rotary offset printing presses typically remain wet and tacky for some time after printing, special precautions must be taken to insure that the freshly printed sheets are not marked or smeared as the sheets are transferred from one printing unit to another, and while being conveyed to the sheet delivery stacker. The printed surface of the freshly printed sheet dries relatively slowly and can be smeared during subsequent transfer between printing units. In order to reduce smearing and offsetting, spray powder is applied on the printed sheet.

In some printing applications, offset and smearing are prevented by applying a protective and/or decorative coating over all or a portion of the freshly printed sheets. Various arrangements have been proposed for applying the protective or decorative coating as an in-line operation by using the last printing unit of the press as the coating application unit. However, when such in-line coating is performed, the last printing unit cannot be used to apply ink to the sheets, and can only be used for the coating operation. Thus, while coating with these types of in-line coating apparatus, the press loses the capability of printing its full range of colors since the last printing unit is converted to a coating unit.

It will be appreciated that the time required to reconfigure a press for coating or non-coating is non-productive and costly. Accordingly, there is a need for an in-line coating apparatus that minimizes the time to clean-up from one printing run and set-up and run the next job. Where consecutive jobs require the same type of coating, particularly blanket coating, it may not be necessary to clean-up the coater between jobs. However, the coating material cannot be allowed to dry on the rollers. Therefore, especially when switching from blanket to spot coating or vice versa, or if there is a delay between jobs, it is necessary to wash-up the coater after each job is completed.

In addition, coater wash-up is necessary when switching between different coating compositions, such as aqueous and ultra violet (UV) curable coatings. Such coating materials are not interchangeable, and consequently, the coater must be washed between applications of different coating media.

The foregoing limitations are overcome, according to the present invention, by a retractable, in-line inking/coating apparatus which is mounted on a printing unit for pivotal, Ferris wheel movement between an operative inking/coating position and a retracted, overhead idle position. The inking/coating apparatus

cylinder by a carriage assembly which includes a cantilevered support arm. The support arm is pivotally coupled between the inking/coating head and the printing unit tower. This cantilevered, pivotal mounting arrangement allows the inking/coating unit to be used between two printing units, as well as on the last printing unit of the press.

In the preferred embodiment, the applicator head includes vertically spaced pairs of cradle members with one cradle pair being adapted for supporting a metal or ceramic coating roller in alignment with a blanket cylinder, and the other cradle pair supporting a resilient anilox coating roller in alignment with the plate cylinder, respectively, when the carriage assembly is in the operative position. Because of the cantilevered, pivotal support provided by the support arm, the applicator head can be lifted and lowered through an arc, similar to Ferris wheel movement, in the limited space between adjacent printing units. When fully retracted, the applicator head and carriage assembly are lifted to an elevated, retracted overhead position, preferably an overhead position overlying the printing unit tower, thus providing complete access to the interstation space and the printing unit cylinders without causing the printing unit to lose its printing capability. The inking/coating applicator roller of the applicator head can be inspected, cleaned or replaced and the doctor blade assembly can be washed-up automatically while the inking/coating apparatus is in the retracted position.

When the inking/coating apparatus is used in combination with a flexographic printing plate and aqueous ink or aqueous coating, the water component of the aqueous ink or coating on the freshly printed sheet is evaporated by a high velocity, hot air interstation dryer and a high volume heat and moisture extractor assembly so that the freshly printed ink or coating is completely dry before the sheet is printed on the next printing unit. This quick drying flexographic printing/coating arrangement permits a base coat of ink, for example opaque white or metallic ink (gold, silver or other metallics) to be applied in the first printing unit, and then overprinted by a lithographic process on the next printing unit.

Exemplary embodiments of the present invention are illustrated in the drawing figures wherein:

FIGURE 1 is a schematic side elevational view of a sheet-fed, rotary offset printing press having inking/coating apparatus embodying the present invention;

FIGURE 2 is a perspective view of the printing press of FIGURE 1 in which a dual head inking/coating apparatus is in the operative coating position and a single head coater is in a retracted, overhead position;

FIGURE 3 is an enlarged simplified perspective view showing one side of the single head ink-

position.

FIGURE 4 is a simplified side elevational view showing the dual head inking/coating apparatus in the operative coating position for spot or overall coating from the blanket position;

FIGURE 5 is a simplified side elevational view showing the single head inking/coating apparatus in the operative coating position for spot or overall coating from the plate position; and,

FIGURE 6 is a simplified side elevational view of the dual head inking/coating apparatus of FIGURE 4, partially broken away, which illustrates the hydraulic drive assembly and doctor blade assembly.

As used herein, the term "processed" refers to various printing methods which may be applied to either side of a substrate, including the application of UV-curable and aqueous inks and/or coatings. The term "substrate" refers to sheet or web material. Also, as used herein, the term "waterless printing plate" refers to a printing plate having non-image surface areas which are hydrophobic and also having image surface areas which are hydrophilic, wherein the non-image surface areas are characterized by a surface tension value which is less than the surface tension of aqueous ink, and the image surface areas are characterized by a surface tension value which is greater than the surface tension of aqueous ink. "Flexographic" refers to flexible printing plates having a relief surface which is wettable by aqueous ink or aqueous coating material.

As shown in the exemplary drawings, the present invention is embodied in a new and improved in-line inking/coating apparatus 10, for applying inks or protective and/or decorative coatings to sheets or webs printed in a sheet-fed or web-fed, rotary offset or flexographic printing press, herein generally designated 12. In this instance, as shown in FIGURE 1, the inking/coating apparatus 10 is installed in a four color printing press 12, such as that manufactured by Heidelberger Druckmaschinen AG of the Federal Republic of Germany under its designation Heidelberg Speedmaster 102V. The press 12 includes a press frame 14 coupled at one end, herein the right end, to a sheet leader 16 from which sheets, herein designated S, are individually and serially fed into the press, and at the opposite end, with a sheet delivery stacker 20 in which the freshly printed sheets are collected and stacked. Interposed between the sheet leader 16 and the sheet delivery stacker 20 are four substantially identical rotary offset printing units 22, 24, 26 and 28 which can print different color inks onto the sheets as they are transferred through the press 12. The printing units are housed within printing towers T1, T2, T3 and T4 formed by side frame members 14, 15.

As illustrated, the printing units 22, 24, 26 and 28 are substantially identical and of conventional design. The first printing unit 22 includes an in-lead transfer cylinder

in parallel alignment between the press side frames 14, 15. Each of the first three printing units 22, 24 and 26 have an interunit transfer cylinder 38 disposed to transfer the freshly printed sheets from the adjacent impression cylinder to the next printing unit via an interstation transfer cylinder 40. The last printing unit 28 is shown equipped with a delivery cylinder 42 which guides each freshly printed sheet 18 as it is transferred from the last impression cylinder 38 to a delivery conveyor system, generally designated 44, to the sheet delivery stacker 20.

The delivery conveyor system 44 as shown in FIGURE 2 is of conventional design and includes a pair of continuous delivery gripper chains 46, only one of which is shown carrying at regular spaced locations along the chains, laterally disposed gripper bars having gripper fingers for gripping the leading edge of a freshly printed sheet 18 after it leaves the nip between the delivery cylinder 42 and impression cylinder 38 of the last printing unit 28. As the leading edge is gripped by the grippers, the delivery chains 46 pull the freshly printed sheet away from the impression cylinder 38 and deliver the freshly printed sheet to the sheet delivery stacker 20.

Prior to reaching the delivery sheet stacker, the freshly printed and/or coated sheets S pass under a delivery dryer 48 which includes a combination of infrared thermal radiation, high velocity hot air flow and heat and moisture extraction for drying the ink and/or the protective/decorative coating on the freshly printed sheets.

In the exemplary embodiment shown in FIGURE 1, the first printing unit 22 is equipped with a flexographic printing plate, and does not require an inking roller train or a dampening system. If an ink roller train is mounted on the first printing unit, the form rollers are retracted and locked off when the printing unit goes on impression. Flexographic aqueous ink is supplied by the inking/coating unit 110. The remaining printing units 24, 26 and 28 are equipped for lithographic printing and include an inking apparatus 50 having an inking roller train 52 arranged to transfer ink from an ink fountain 54 to the plate cylinder 32. This is accomplished with the aid of a fountain roller 56 and a ductor roller. The fountain roller 56 projects into the ink fountain 54, whereupon its surface is wetted with printing ink Q. The printing ink Q is transferred intermittently to the inking roller train 52 by the ductor roller. The inking roller train 52 supplies printing ink Q to the image area of a printing plate P mounted on the plate cylinder 32.

The printing ink Q is transferred from the printing plate P to an ink receptive blanket B which is mounted on the blanket cylinder 34. The inked image carried on the blanket B is transferred to a sheet S as the sheet is transferred through the nip between the impression cylinder 36 and the blanket B.

The inking roller arrangement 52 illustrated in FIGURE 1 is exemplary for use in combination with lithographic ink printing plates. It will be understood that

engagement with the flexographic plate of printing unit 22.

Referring now to FIGURE 4, FIGURE 5 and FIGURE 6, the in-line inking/coating apparatus 10 includes a carriage assembly 58 which supports an applicator head 60. The applicator head 60 includes a hydraulic motor 62, a lower gear train 64, an upper gear train 65, an applicator roller 66 and a doctor blade assembly 68. The external peripheral surface of the applicator roller 66 is inserted into wetting contact with liquid coating material or ink contained in a reservoir 70. The reservoir 70 is continuously supplied with ink or coating which is circulated through the reservoir 70 from an off-press source by a pump (not illustrated). The hydraulic motor 62 drives the applicator roller 66 synchronously with the plate cylinder 32 and the blanket cylinder 34 in response to an RPM control signal from the press drive (not illustrated) and a feedback signal developed by a tachometer 72. While a hydraulic drive motor is preferred, an electric drive motor can be used.

The applicator roller 66 is preferably a fluid metering anilox roller which transfers measured amounts of printing ink or coating material onto the printing plate or blanket. The surface of an anilox roller is engraved with an array of closely spaced, shallow depressions referred to as "cells". Ink or coating material from the reservoir 70 flows into the cells as the anilox roller turns through the reservoir. The transfer surface of the anilox roller is scraped with a doctor blade 73 to remove excess ink or coating. The ink or coating remaining on the anilox roller is the measured amounts contained within the cells.

The applicator roller 66 is cylindrical and may be constructed in various diameters and lengths, containing cells of various sizes and shapes. The volumetric capacity of an anilox roller is established during manufacturing and is dependent upon the selection of cell size, shape and number of cells per unit area. Depending upon the intended application, the cell pattern may be fine (many small cells per unit area) or coarse (fewer larger cells per unit area).

By applying the ink or coating material through the inking/coating applicator head 60, more ink or coating material can be delivered to the sheet S as compared with the inking roller train of a lithographic printing unit. Moreover, color intensity is stronger and more brilliant because the flexographic ink is applied at a much larger film thickness than can be applied by the lithographic process and is not diluted by dampening solution.

The inking/coating applicator head 60 includes side frame members 74, 76 that support the applicator roller 66, gear train 64, gear train 65, doctor blade assembly 68 and the drive motor 62. The applicator roller 66 is supported at opposite ends on a lower cradle formed by a pair of end plates 78, 80 which hold the applicator roller 66 in parallel alignment with the blanket cylinder 34 (FIGURE 5). The side frames 74, 76 are also pro-

the lower side plates 78, 80. Each cradle has a pair of sockets 79, 81 and 83, 85, respectively, for holding the applicator roller 66 for spot coating or inking engagement against the plate P of the plate cylinder 32 (FIGURE 4) or the blanket B of the blanket cylinder 34.

Preferably, the applicator roller 66 for the upper cradle (plate) position is an anilox roller having a resilient transfer surface. In the dual cradle arrangement, the press operator can quickly change over from blanket inking/coating and plate inking/coating with minimum press down time, since it is only necessary to remove and reposition or replace the applicator roller 66, and wash-up the doctor blade assembly 68 changing from ink to coating or vice versa. The capability to selectively operate in either the flexographic mode or the lithographic mode and to print or coat from either the plate or blanket position is referred to herein as the "LITHOFLEX" process.

Referring again to FIGURE 2 and FIGURE 3, the applicator head 60 is supported by the carriage assembly 58 in a cantilevered, pivotal arrangement which allows the dual cradle inking/coating apparatus 10 and a single cradle inking/coating apparatus 110 to be used between any two adjacent printing units, as well as used on the first and last printing units of the press. This is made possible by a pair of cantilevered support arms 88, 90 that are pivotally coupled to the side plates 74, 76, respectively, on a pivot shaft 77. Each support arm has a hub portion 88A, 90A, respectively, and an elongated shank portion 88B, 90B, respectively.

The cantilevered support arms are pivotally mounted on the printing tower by pivot blocks 92, 94, respectively. The hub portions 88A, 90A are journaled for rotation on pivot shafts 96, 98, respectively. The pivot blocks 92, 94 are securely fastened to the tower 140, so that the carriage assembly 58 is pivotally suspended from the pivot shafts 96, 98 in a cantilevered Ferris support arrangement. The shank portions 88B, 90B are pivotally coupled to the pivot shaft 77, so that the carriage assembly 58 and the applicator head 60 are capable of independent rotation with respect to each other and with respect to the pivot shaft 77. By this arrangement, the applicator head 60 is pivotally suspended from the pivot shaft 77, and remains in an upright orientation as the support arms rotate from the operative position to the fully retracted position, and vice versa.

Thus, the cradles 78, 80 and 82, 84 position the applicator roller 66 in vertical and horizontal alignment with the plate cylinder or blanket cylinder when the applicator head is extended to the operative position, for example as shown in FIGURE 4 and FIGURE 5. Moreover, because of the transverse relationship between the hub portion and shank portion of the support arms, the applicator head 60 and carriage assembly 58 are capable of rotating through a Ferris arc without touching the adjacent printing tower. This makes it possible to install the inking/coating apparatus 10 on any intermedi-

first printing unit tower T1 and the last printing unit tower T4. Additionally, when the inking/coating unit 10 is in the operative position, the lateral projection of the applicator head 60 into the interstation space between printing units is minimized. This assures virtually unrestricted operator access to the interstation space between adjacent printing units when the applicator head is engaged in the operative position, and completely unrestricted access when the carriage assembly 58 is retracted.

Rotation of the carriage assembly 58 is counterclockwise from the retracted, idle position (shown in phantom in FIGURE 1) to the operative position (FIGURE 4 and FIGURE 5). The carriage assembly 58 can be adapted for clockwise rotation from the retracted position to the operative position for engagement of the applicator roller to either the plate or the blanket on the dampener side of the tower, assuming that access to the plate and blanket is not restricted by dampener rollers or the like.

Rotational movement of the support arms 88, 90 is assisted by counterweights 100, 102 which are secured to the support arms, respectively, for concurrent rotation with respect to the pivot blocks 82, 84. With the passive assistance of the counterweights, the press operator can easily move the inking/coating assembly 10 from the engaged operative position as shown in FIGURE 4 to the fully retracted, idle position as shown in phantom in FIGURE 1. Preferably, rotation of the carriage assembly 58 is assisted by a torsion spring, electric motor or hydraulic motor.

The inking/coating apparatus 10 is releasably locked into the operative position as shown in FIGURE 4 by releasable latch couplings 108, 106 that secure the support arms 88, 90 to the press side frames 14, 18, respectively, of the printing unit tower T4 in the operative position. Coasting engagement of the applicator roller 86 against the blanket cylinder 34 is produced by power actuators, preferably pneumatic cylinders 104, 106 which have extendable/retractable power transfer arms 104A, 106A, respectively. The pneumatic cylinder 104 is pivotally coupled to the support arm 88 by a pivot linkage 108, and the second pneumatic cylinder 106 is pivotally coupled to the support arm 90 by a pivot linkage 109. In response to actuation of the pneumatic cylinders 104, 106, the power transfer arms are retracted. As the transfer arms retract, the inking/coating head 60 is rotated counterclockwise on the pivot shaft 77, thus moving the applicator roller 86 into coasting engagement with the blanket cylinder 34.

The pivot linkage 108 includes a bell crank 111 which is mounted for pivotal movement on a pin 113. The pin 113 is supported by a clevis plate 115 which is attached to the support arm 88. One end of the bell crank is pivotally coupled to the actuator arm 104A, and a cam roller 117 is mounted for rotation on its opposite end.

The cam roller 117 is engagable against an adjustable stop 119 which is rigidly secured to the side plate

cam follower 121. As the cam roller 117 of a receiver block 125 as the cam roller 117 is moved into engagement with the adjustable stop 119 in the interlocked, operative position. Referring to FIGURE 4, FIGURE 5 and FIGURE 6, the receiver block 125 is secured to the delivery side of the printing unit tower by machine screws.

When the plate P goes on impression, power is applied to the pneumatic actuator 104 and the power transfer arm 104A retracts, thus causing the bell crank 111 to rotate counterclockwise about the pin 113. The torque applied by the pneumatic actuator 104 is transmitted to the applicator head 60 through the cam roller 117 and the adjustable stop 119. Counterclockwise movement of the applicator head 60 relative to the support shaft 77 carries the applicator roller 86 into engagement with the plate P.

The adjustable stop 119 has a threaded bolt 119A which is engagable with the cam roller 117. The striking point of engagement is preset so that the applicator roller 86 is properly positioned for engagement with the plate P or blanket B in the operative position when the applicator head 60 is interlocked with the press frame 14 and the printing unit goes on impression.

Referring to FIGURE 5, an inking/coating apparatus 110 having a single head is illustrated. The construction of this alternative embodiment is identical in all respects with the dual head arrangement, with the exception that only a single gear train and a single cradle for holding the applicator roller is provided. In both embodiments, the inking/coating head 60 remains upright as it swings through an arc, comparable to the movement of a Ferris wheel. Because of the upright orientation of the inking/coating head 60 as it moves between the extended and retracted positions, the usual platform spacing between printing unit towers provides adequate clearance to permit extension and retraction of the carriage assembly 58 without interference with operator access to the printing units. This is a significant advantage in that it permits the in-line inking/coating apparatus 10 to operate effectively in the interstation space between any adjacent printing units, and without blocking or obstructing access to the cylinders of the printing units when the inking/coating apparatus is in the retracted position (as indicated in phantom in FIGURE 1).

Moreover, when the in-line inking/coating apparatus is in the fully retracted position, the applicator roller 86 is conveniently positioned on the dampener side of the printing unit for inspection, clean-up or replacement. Additionally, the doctor blade assembly is also conveniently positioned for inspection, removal, adjustment or clean-up. Also, the doctor blade reservoir and coasting circulation lines can be cleaned while the press is running as well as when the press has been stopped for change-over from one type of ink or coating material to another.

rial, the water component on the freshly printed sheet S is evaporated by a high velocity hot air interstation dryer and high volume heat and moisture extractor units 112 and 114, as shown in FIGURE 1, FIGURE 4 and FIGURE 5. The dryer/extractor units 112 and 114 are oriented to direct high velocity heated air onto the freshly printed/coated sheets as they are transferred by the interunit and the intermediate transfer cylinders 36, 40. By this arrangement, the freshly printed aqueous ink or coating material is completely dry before the sheet is overprinted in the next printing unit.

The high velocity, hot air dryer and high performance heat and moisture extractor units 112, 114 utilize high velocity air jets which scrub and break-up the moist air level which clings to the surface of each freshly printed sheet. Within each dryer, high velocity air is heated to a high temperature as it flows across a resistance heating element within an air delivery baffle tube. High velocity jets of hot air are discharged through multiple airflow apertures through an exposure zone Z (FIGURE 4 and FIGURE 5) onto the freshly printed/coated sheet S as it is transferred by the transfer cylinder 36 and intermediate transfer cylinder 40, respectively. Each dryer assembly includes a pair of air delivery dryer heads which are arranged in spaced, side-by-side relation as shown in FIGURE 4 and FIGURE 5.

The high velocity, hot moisture-laden air displaced from each freshly printed sheet is extracted from the dryer exposure zone Z and completely exhausted from the printing unit by the high volume extractors. Each extractor head includes a manifold coupled to the dryer heads and draws the moisture, volatiles and high velocity hot air through a longitudinal gap between the dryer heads. According to this arrangement, each printed sheet is dried before it is run through the next printing unit.

The water-based inks used in flexographic printing dry at a relatively moderate drying temperature provided by the interstation high velocity hot air dryer/extractors 112, 114. Consequently, print quality is substantially improved since the aqueous ink is dried at each printing unit before it enters the next printing unit. Moreover, back-trapping on the blanket of the next printing unit is completely eliminated. This interstation drying arrangement makes it possible to print aqueous inks such as metallic ink and opaque white ink at one printing unit, and then overprint at the next printing unit.

This arrangement also permits the first printing unit to be used as a coater in which an aqueous coating is applied to low grade paper, for example recycled paper, to trap and seal in dirt, dust, spray powder and other debris and provide a smoother, durable surface that can be overprinted in the next printing unit. The first down coating seals the surface of the low grade, rough substrate and improves overprinted dot definition while preventing strike-through and show-through. A UV-curable

printing unit.

Preferably, the applicator roller 66 is constructed of metal or ceramic when it is used for applying a coating material to the blanket B on the cylinder 34. When the applicator roller 66 is applied to the plate, it is preferably constructed as an anilox roller having a resilient transfer surface for engaging a flexographic printing plate. Suitable resilient roller surface materials include Buna N synthetic rubber and EPDM (terpolymer elastomer).

It will be appreciated that the inking/coating apparatus 10 is capable of applying a wide range of ink types, including fluorescent (Day Glo), pearlescent, metallics (gold, silver and other metallics), glitter, scratch and sniff (micro-encapsulated fragrance), scratch and reveal, luminous, pressure-sensitive adhesives and the like.

The press operator can eliminate the dampener roller assembly altogether, and the inking/coating apparatus 10 can selectively apply aqueous inks and coatings to a flexographic or waterless printing plate and the blanket. Moreover, overprinting of the aqueous inks and coatings can be carried out in the next printing unit since the aqueous inks and coatings are completely dried by the high velocity, hot air interstation dryer and high volume heat and moisture extractor assembly.

The aqueous inks and coatings as used in the present invention contain colored pigments and/or soluble dyes, binders that fix the pigments onto the surface of the printed sheet, and waxes, defoamers and thickeners. Aqueous printing inks predominantly contain water as a solvent, diluent and/or vehicle. The thickeners which are preferred include alginates, starch, cellulose and its derivatives, for example cellulose esters or cellulose ethers and the like. Coloring agents including organic as well as inorganic pigments may be derived from dyes which are insoluble in water. Also, the printing ink may contain water and can be predominantly glycol or the like, with the pigment being bound by an appropriate resin. When metallic inks are printed, the cells of the anilox roller must be appropriately sized to prevent the metal particles from getting stuck within the cells. The cell size is critical, and for metallic gold ink, the anilox roller should have a screen line count in the range of 175-300 lines per inch (69-118 lines per cm).

The inking/coating apparatus 10 can also apply UV-curable inks and coatings. If UV-curable inks and coatings are utilized, ultra-violet dryer/extractors are installed adjacent the high velocity hot air dryer/extractor units 112, 114, respectively.

It will be appreciated that the inking/coating apparatus 10 described herein makes it possible to selectively operate a printing unit in either the flexographic printing mode or the lithographic printing mode, while also providing the capability to print or coat from either the plate or blanket position. The dual cradle support arrangement of the present invention makes it possible to quickly change over from inking/coating at the blanket

position with minimum press down-time, since it is only necessary to remove and reposition or replace the applicator roller 68 while the printing/inking apparatus is in the retracted position.

Moreover, the press operator may elect to spot or overall coat with aqueous ink/coating from the plate during one job, and then spot and/or overall coat from the blanket during the next job. Since the doctor blade assembly can be flushed and washed-up quickly and the applicator roller can be replaced quickly, it is possible to spot coat or overall coat from the plate position or from the blanket position with aqueous inks or coatings during the first press run and then spot coat or overall coat with UV-curable inks or coatings from the plate position or from the blanket position during the next press run. The inking/coating apparatus 10 is completely out of the way in the retracted position; consequently, the doctor blade reservoir and supply lines can be flushed and washed-up by automatic wash-up equipment while the printing unit is printing another job.

The positioning of the applicator head and roller assembly relative to the plate and blanket is repeatable to a predetermined, preset impression position. Consequently, no printing unit adjustment or alteration is required, except for flushing the doctor blade assembly and cleaning or replacing the applicator roller to accommodate a different kind of ink or coating material. Although manual extension and retraction have been described in connection with the exemplary embodiment, extension to the operative position and retraction to a non-operative idle position can be carried out automatically by hydraulic or electric motor servomechanisms.

The Ferris wheel support arrangement allows the inking/coating apparatus to operate effectively in the interstation space between any adjacent printing units, as well as on the first or last printing unit of the press, without blocking or obstructing the interstation space or restricting operator access to the cylinders of any of the printing units.

Finally, because the inking/coating apparatus of the present invention is mounted on a printing unit tower and is extendable to the operative position without requiring adjustment or alteration of the printing unit cylinders, it can be used for applying printing ink or coating material to the blanket cylinder of a rotary offset web press, or to the blanket of a dedicated coating unit.

Claims

1. Inking/coating apparatus (10) for use in a printing press (12) of the type having a printing unit (22, 24, 25, 28) on which a plate cylinder (32), a blanket cylinder (34) and an impression cylinder (36) are mounted for rotation, wherein the inking/coating apparatus is characterized by:

the applicator head (80) being pivotally mounted on the plate cylinder or to a blanket (B) mounted on the blanket cylinder, either separately or simultaneously when the inking/coating apparatus is in an operative position relative to the plate and blanket cylinders; and,

a carriage assembly (58) for moving the applicator head to the operative position in which the applicator head is disposed laterally adjacent to the plate and blanket cylinders and for moving the applicator head from the operative position to a retracted position in which the applicator head is elevated with respect to the plate and blanket cylinders.

2. Inking/coating apparatus (10) as set forth in claim 1, wherein the carriage assembly (58) is characterized by:

a support arm (88, 90) having a first end portion (88A) constructed for pivotal attachment to the printing unit and having a second end portion (88B) pivotally coupled to the applicator head (80), the applicator head being movable on the support arm to the operative position.

3. Inking/coating apparatus (10) as set forth in claim 1, characterized in that a counterweight (100, 102) is coupled to the carriage assembly.

4. Inking/coating apparatus (10) as set forth in claim 1, wherein the applicator head (80) is characterized by:

a doctor blade assembly (68) having a reservoir (70) for receiving ink or liquid coating material; and,
an applicator roller (86) coupled to the doctor blade assembly in fluid communication with the reservoir, the applicator roller being engageable with a printing plate (P) on the plate cylinder or with a blanket (B) on the blanket cylinder when the applicator head (80) is in the operative position.

5. Inking/coating apparatus (10) as set forth in claim 4, characterized in that the applicator roller (86) is an anilox roller having a resilient transfer surface.

6. Inking/coating apparatus (10) as set forth in claim 1, characterized in that:

a power actuator (104, 106) is movably coupled to the applicator head (80), the power actuator having a power transfer arm (104A, 106A) which is extendable and retractable; and, movement converting apparatus (108) is coupled to the power transfer arm (104A, 106A) converting

applicator head (60) relative to the carriage assembly.

7. Inking/coating apparatus (10) as set forth in claim 6, wherein the movement converting apparatus (108) is characterized by:

a bell crank plate (111) having a first end portion coupled to the power transfer arm and having a second end portion for engaging a stop member;

a stop member (119) secured to the applicator head (60); and,

a clevis plate (115) secured to the carriage assembly (58) and pivotally coupled to the bell crank plate.

8. Inking/coating apparatus (10) as set forth in claim 1, wherein the applicator head (60) is characterized by:

first and second side frame members (74, 76) pivotally coupled to the carriage assembly (58); a doctor blade assembly mounted on the first and second side frame members, the doctor blade assembly including a reservoir (70) for receiving ink or liquid coating material;

a cradle assembly (78, 80), (82, 84) mounted on the first and second side frame members, respectively;

an applicator roller (66) mounted for rotation on the cradle assembly and coupled to the doctor blade assembly for rolling contact with ink or coating material in the reservoir, the applicator roller being engageable with a printing plate (P) on the plate cylinder (32) or with a blanket (B) on the blanket cylinder (34) when the applicator head (60) is in the operative position; and, a drive motor (82) coupled to the applicator roller for rotating the applicator roller.

9. Inking/coating apparatus (10) as set forth in claim 8, characterized in that:

the cradle assembly (78, 80) has first and second sockets (79, 81) disposed on the first and second side frame members respectively; and, the applicator roller (66) is mounted for rotation on the first and second sockets.

10. Inking/coating apparatus (10) as set forth in claim 8, characterized in that:

the cradle assembly (78, 80), (82, 84) includes first and second sockets (79, 81) disposed on the first and second side frame members, respectively, and third and fourth sockets dis-

posed on the applicator roller (66) is selectively mountable for rotation on either the first and second sockets or on the third and fourth sockets for applying ink or coating material to either the plate or blanket when the applicator head is in the operative position.

11. Inking/coating apparatus (10) as set forth in claim 1, wherein the applicator head (60) is characterized by:

a first cradle (82, 84) for supporting an applicator roller (66) for engagement with the plate when the inking/coating apparatus is in the operative position; and

a second cradle (82, 84) for supporting an applicator roller (66) for engagement with the blanket (B) when the inking/coating apparatus is in the operative position.

12. Inking/coating apparatus (10) as set forth in claim 1, wherein the carriage assembly is characterized by:

a support arm (88, 90) having a first end portion pivotally coupled to the printing unit (88A, 90A) and having a second end portion (88B, 90B);

a common pivot shaft (77) on which the support arm second end portion and the inking/coating apparatus are pivotally mounted, and,

male and female latch members (102, 105) coupled between the common pivot shaft and the printing unit, with one of the latch members being secured to the common pivot shaft and the other latch member being constructed for attachment onto the printing unit, the latch members being mateable in interlocking engagement when the applicator head (60) is in the operative position.

13. Inking/coating apparatus (10) as set forth in claim 1, wherein the applicator head (60) and the printing unit are characterized by:

male and female latch coupling members (103, 105) mounted on the carriage assembly (58) and on the printing unit for releasably latching the carriage assembly in interlocking engagement with the printing unit when the applicator head is in the operative position.

14. Inking/coating apparatus (10) as set forth in claim 1, wherein the carriage assembly (58) is characterized by an elongated shank portion (88B, 90B) and a hub portion (88A, 90A), the elongated shank portion being pivotally coupled to the applicator head

total attachment onto the printing unit.

15. A rotary offset printing press (12) having first and second printing units (22, 24) and the inking/coating apparatus (10) of claim 1 is movably coupled to the first printing unit (22) as set forth in claim 1, characterized by:

a dryer (112) mounted on the first printing unit adjacent the impression cylinder (36) of the first printing unit for discharging heated air onto a freshly printed substrate while the freshly printed substrate is in contact with said impression cylinder.

16. A rotary offset printing press (12) as defined in claim 15, characterized in that:

an extractor (112E) is disposed adjacent the dryer for extracting hot air, moisture and volatiles from an exposure zone (2) between the dryer and the freshly printed substrate.

17. A rotary offset printing press (12) as defined in claim 15, characterized in that:

an intermediate transfer cylinder (40) is coupled in sheet transfer relation with the impression cylinder (36) of the first printing unit (22); and,
an intermediate dryer (114) is disposed adjacent the intermediate transfer cylinder for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder of the first printing unit and while it is in contact with the intermediate transfer cylinder (40).

18. A method for rotary offset printing in a printing press (12) of the type including first and second rotary offset printing units (22, 24), and using aqueous or UV-curable printing ink or coating material in the operation of at least the first printing unit, characterized by the following steps performed at each printing unit in succession:

spot or overall coating a plate (P) with aqueous ink/aqueous coating material or UV-curable ink/UV-curable coating material;
spot and/or overall coating a blanket (B) with aqueous ink/aqueous coating material or UV-curable ink or UV-curable coating material;
transferring the printing ink or coating material from the printing plate (P) to the blanket (B);
transferring the inked or coated image from the blanket to a substrate (S) as the substrate is transferred through the nip between the

and,

drying the ink or coating material on the freshly printed substrate before the substrate is subsequently processed.

19. A method for rotary offset printing as defined in claim 18, wherein the drying step is characterized by:

discharging high velocity, heated air onto the freshly printed/coated substrate (S) while the freshly printed/coated substrate is in contact with the impression cylinder (36) of the first printing unit (22).

20. A method for rotary offset printing as defined in claim 18, characterized by the steps:

transferring the freshly printed substrate (S) from the first printing unit (22) to an intermediate transfer cylinder (40); and,
drying the freshly printed substrate while it is in contact with the intermediate transfer cylinder.

21. A method for rotary offset printing as defined in claim 18, characterized by the step:

extracting hot air, moisture and volatiles from an exposure zone (2) above the freshly printed/coated substrate (S) while the freshly printed/coated substrate is in contact with the impression cylinder (36).

22. A method for rotary offset printing as defined in claim 18, characterized by the steps:

applying a primer coating of an aqueous coating material or UV-curable coating material to a substrate (S) in the first printing unit (22); and,
drying the primer coating on the substrate before the substrate is processed in the second printing unit.

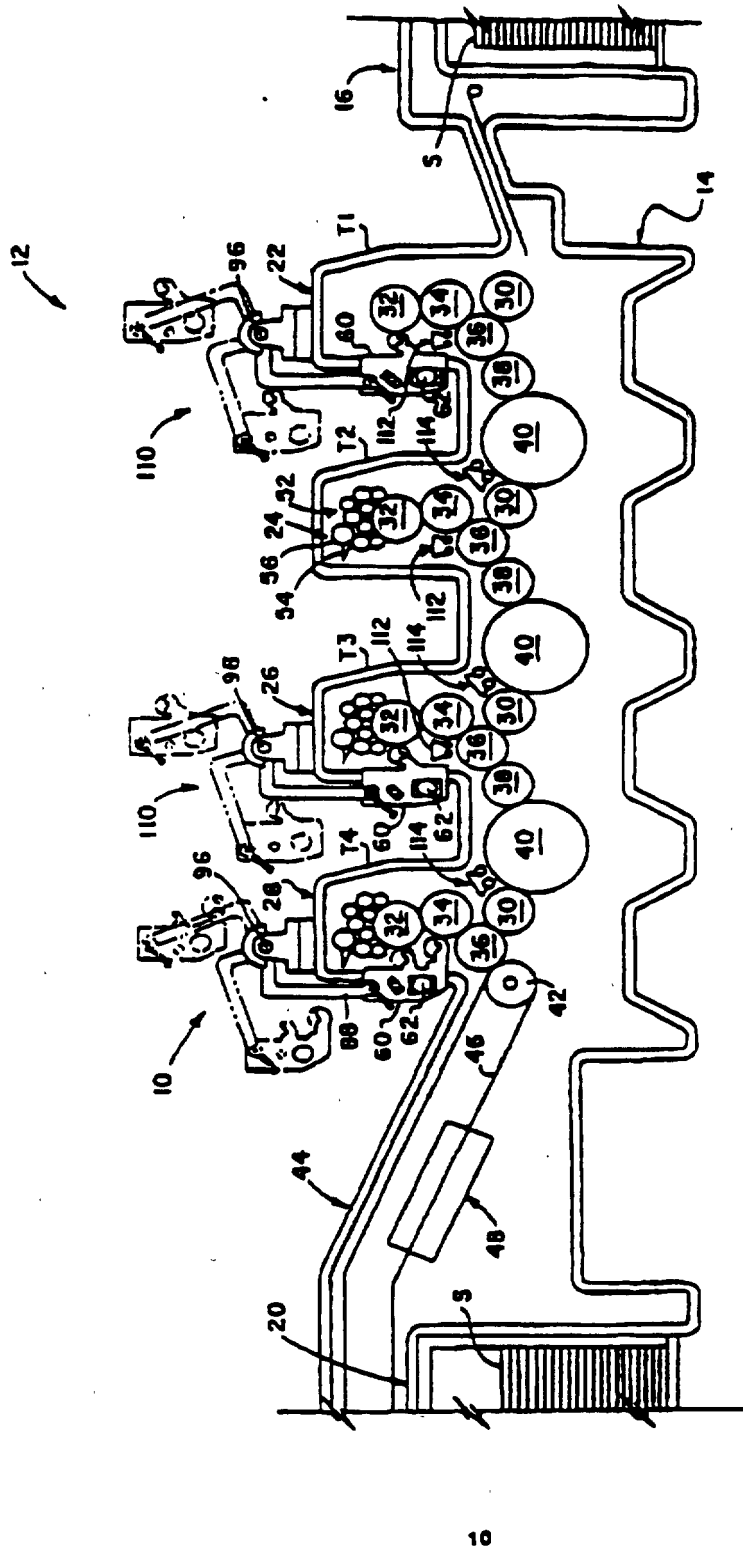


FIG. 1

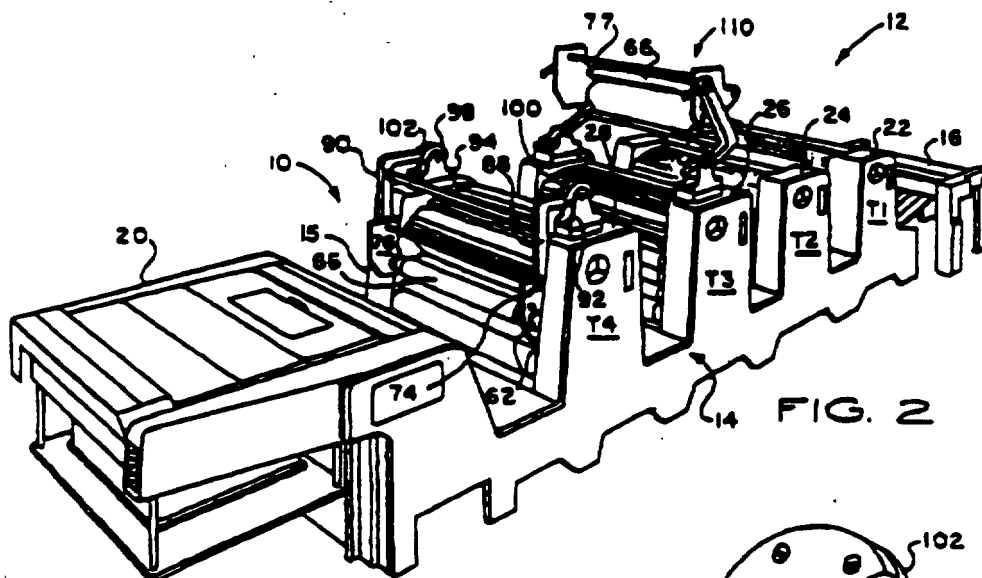


FIG. 2

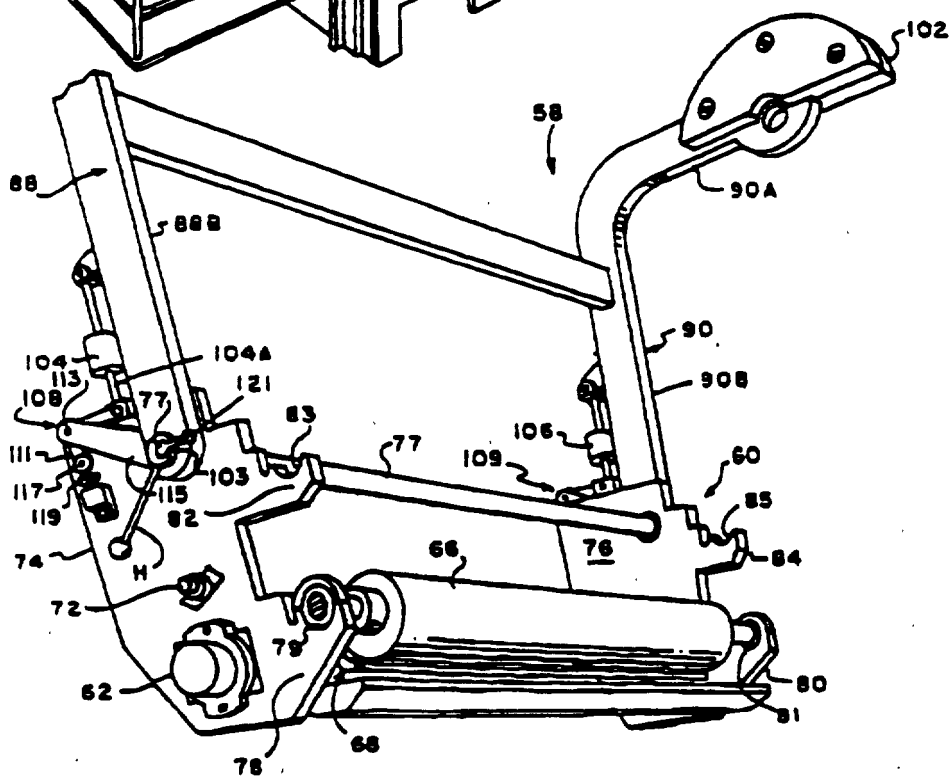


FIG. 3

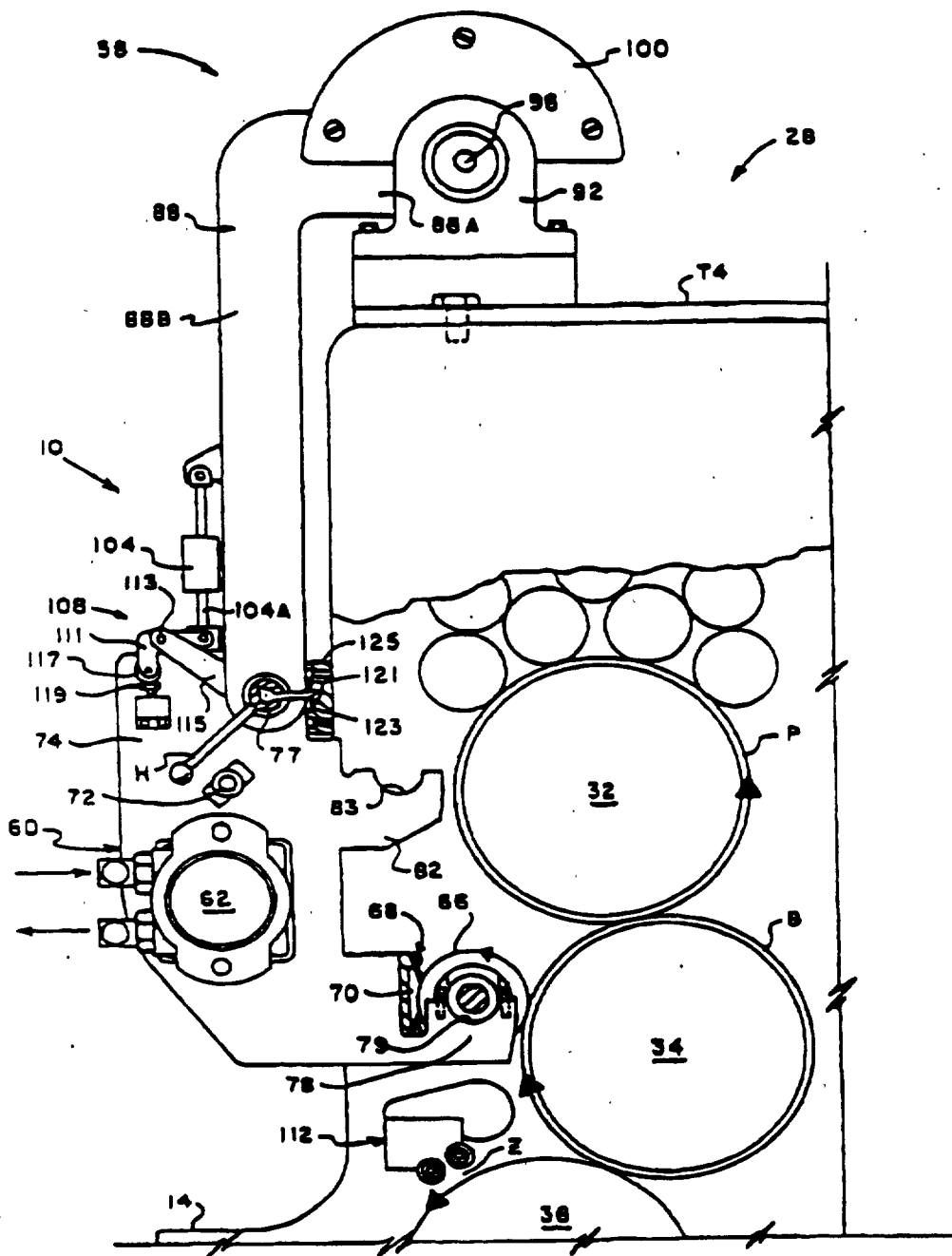


FIG. 4

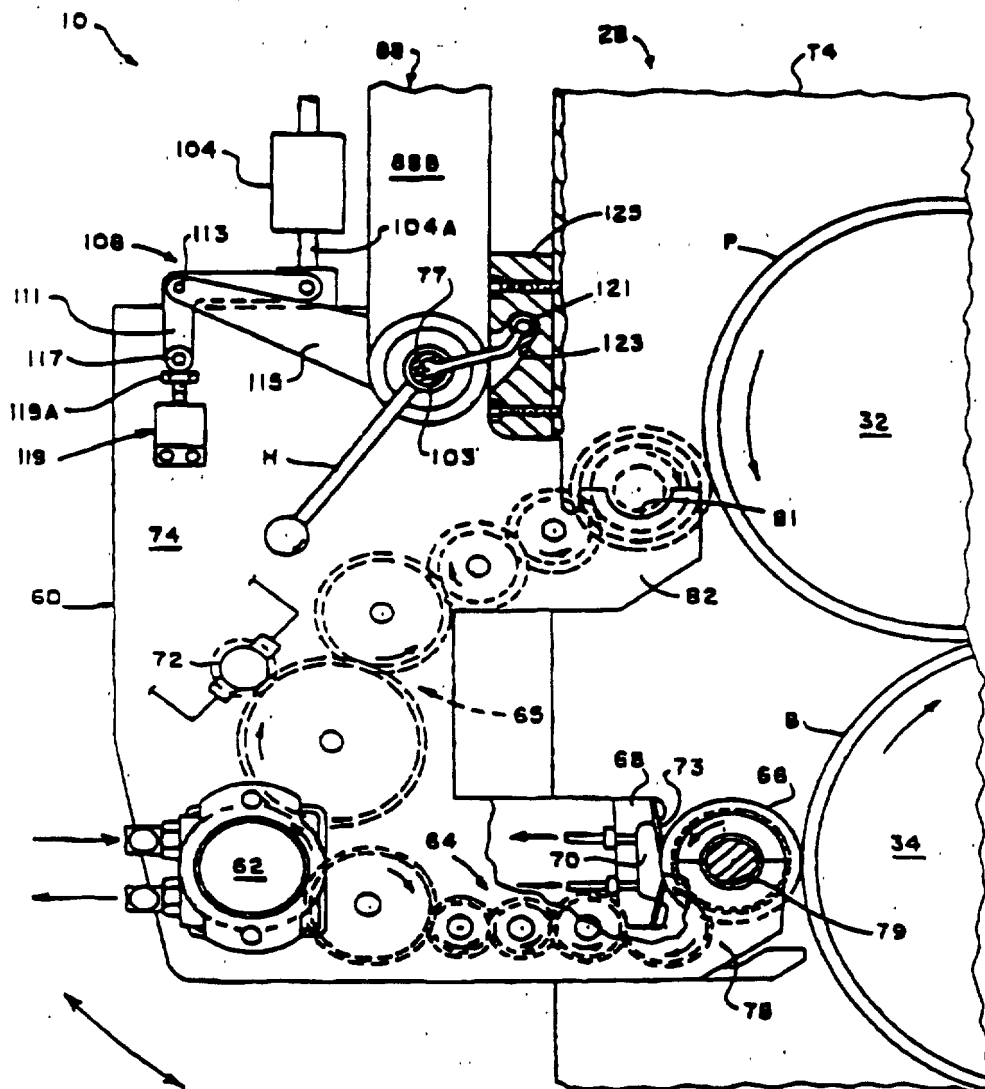


FIG. 6

THE END

TO: T-50 975-575-575

Exhibit "A"

75 DEFENDANT'S
EXHIBIT 929
NO. Bird-4

W000884

100-443886-100

THURSDAY AUGUST 18, 1994	
Wk 33 • Day 230, 135 Left	
DIARY AND WORK RECORD	
TIME	DESCRIPTION
8:	
9:	
10:	OO Williamson Ptg. Bill Davis
11:	Vespe Williamson Bob Enrick.
12:	AB II within weeks. Remove SB consent. HD/ES.
1:	Arrange meeting Bill/Bob/Heidi Heid - Bob Beyard
2:	
3:	
4:	
5:	

RECEIVED

MONDAY		
Wk 35 • Day 241, 124 Lst		
AUGUST 29, 1984		
DIARY AND WORK RECORD		
PS	NAME OR PROJECT	DESCRIPTION
8	Alcanta	Rodger Heir
9	②	HV/AB II on everything
	③	as all other plus UV.
10		Exhaust + STO of IR.
11		
12		
1		
2	2.45	- Williamson Bill Davis.
3		102+L+Y+LX *
		triple tower
4		
5		

MONDAY
SEPTEMBER 12, 1994
APPOINTMENTS & SCHEDULED EVENTS

TO BE DONE TODAY (ACTION LIST)

6 color Gestech
Hi Ace

EXPENSE & REIMBURSEMENT RECORD:

W000887

31

DIARY AND WORK RECORD

84

59

30

41

卷二

1. 1

2

3

4

55

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graph TD
    A[10,000 genes] --> B[1,000 genes]
    B --> C[500 genes]
    C --> D[100 genes]
    
```

Figure 1: Selection of 1000 genes for further analysis. The process starts with 10,000 genes, which are filtered to 1,000 genes based on expression level (log2(FC) > 1.5). These 1,000 genes are then filtered to 500 genes based on expression level (log2(FC) > 1.5). Finally, 100 genes are selected for further analysis based on expression level (log2(FC) > 1.5).

PT Little along E. Dr.
 1942 Little 1/24/42
 1945 E. Dr. / 1/24/45

MONDAY
NOVEMBER 14, 1994
APPOINTMENTS & SCHEDULED EVENTS

NAME PLACE SUBJECT

TO BE DONE TODAY (ACTION LIST)

Calls - ~~Kearfold~~.

215-343-9300

1. Write to Brian Hamilton
2. Set up conference visit
Thad Williamson
3. JV extension.

EXPENSE & REIMBURSEMENT RECORD:

Bill Davis

NOV 15 1994

TUESDAY 7-5-92 4/92			
NOVEMBER 15, 1994			
APPOINTMENTS & SCHEDULED EVENTS			
NAME	PLACE	SUBJECT	
Patterson Press			
Head Sam Sicker			
22 nd - 35, 100 max			
6 camps each side			
Expenditure on 22 nd - 35			
TO BE DONE TODAY ACTION LIST			
ANDERSON			
KIRK			
RICE			
Paisano			
Press is very critical			
Gonna catch up			
at 1500 p.m.			
any more			
EXPENSE & REIMBURSEMENT RECORD:			
Bill Davis, 214-904-2100			
Ed / Woten, L. in Mc			

W000890

11/18/94 04:00:00

FRIDAY		30
Wk. 46 • Day 322 43 Left		NOVEMBER 18, 1994
DIARY AND WORK RECORD		
TIME	NAME OF PROJECT	DESCRIPTION
8:00	3.16 - 342 - 4740	Terry Steinbeck
9:00	Kennedy building in	Jim Scott / Bishop
	5.3 - 27 - 25.5	
10:00		
11:00	1.00 Heidelberg USA.	
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00	6.00	

MONDAY
NOVEMBER 21, 1994
APPOINTMENTS & SCHEDULED EVENTS

TO BE DONE TODAY (ACTION LIST)

Performance 819,1000
Williamson P.C-90,20
3012 Formant

750 Package

EXPENSE & REIMBURSEMENT RECORD:

W000892

NOV 21 1994

MONDAY	
30	
Wk 47 • Day 325 40 Left NOVEMBER 21, 1994	
DIARY AND WORK RECORD	
8	Jack Stoughton Ray Heanun
9	
10	
1	
2	Bill Davis
1	Bill Davis / Jesse Williams Terry Butler Training
2	
3	DD Day RTR Performance 6263 - 5-11-94
4	
5	
T-11 E.D. JACK STOUGHTON FLT #1469 DELTA.	

31

NAME IN BLOCK:

2530 2° ON

WILLIAMSON PTG.

Wk 51 • Day 355, 10 Left

WEDNESDAY
DECEMBER 21, 1994

31

DIARY AND WORK RECORD

TIME	NAME OF PROJECT	DESCRIPTION
8:00	WILLIAMSON PTE.	
9:00		
10:00		
11:00		
12:00		
1:00		
2:00		
3:00		
4:00		
5:00		

W000895

Wk 1 - Day 4 351 Lst

WEDNESDAY
JANUARY 4, 1995

DIARY AND WORK RECORD

HR	NAME OR PROJECT	DESCRIPTION
8		
9		
10		
11		
12		
1	W. Fox	W. Fox
2	M. Curtis	M. Curtis
3	Metallic/Resin cast.	Metallic/Resin cast.
4	Hutton Stenling	Hutton Stenling
5	Debra Deffen	Debra Deffen
6	416-438-1622	416-438-1622
7	Metallic	Metallic
8		
9		
10		
11		
12		

Wk 2 • Day 12 353 LHM

THURSDAY
JANUARY 12, 1985

31

DIARY AND WORK RECORD

TIME	NAME OR PROJECT	DESCRIPTION
8	Kansas City.	
9	Burd & Fletcher	work 21st
10	Midland Litho.	cancelled.
11		
12		
1		
2	St Louis Litho.	
3	324-352-1300	
4	Russ Kuge	
5	Joe Stein	
6	Very interested wto	
7	match at least 90% of bronze	
8		
9	Chicago.	
10	9:00 Call Frank 301-942-8572	

043 0000 0000 0000

MONDAY JANUARY 30, 1995		31
Wk 5 - Day 30 335 Left		
DIARY AND WORK RECORD		
PS	NAME OR PROJECT	DESCRIPTION
8		
9		
10		
11		
12		
1		
2	30 Williamson	G.
3		
4		
5		

SUNDAY MONDAY TUESDAY WEDNESDAY

LURE FLETCHER
D

WILLIAMSON

A. NICKS
TIBER

ADVISED
TIBER.

January

S	M	T	W	R	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Wk 6 • Day 40. 325 Lft

THURSDAY
FEBRUARY 9, 1995

28

DIARY AND WORK RECORD

HRS	NAME OR PROJECT	DESCRIPTION
8:	Call Bill Davis / Wilkerson	
9:	Lab Sweet: quote 2 Lamp	
	and 4 over 4 'old' or	
	26" / 26"	
10:		
11:		
12:		
1:		
2:		
3:		
4:		
5:		

Wk 6 - Day 42, 323 Lst

SATURDAY
FEBRUARY 11, 1995

28

DIARY AND WORK RECORD

TIME	NAME OR PROJECT	DESCRIPTION
8:00		
9:00	00 - HD / W. Williamson	
10:00		
11:00		
12:00		
1:00		
2:00		
3:00		
4:00		
5:00		
	30 miles	

28

NAME OF PROJECT	DESCRIPTION
-----------------	-------------

8	Vent-A-tied order Touch pad - tlV on LYL
9	Schedule LYL MD Both samples
10	Wolstenholme Visiting April onwards.
11	30 Bill Davis
12	
1	
2	
3	
4	
5	

NAME _____

Silver Wollenholme
How much?
Gold

EXPENSE & REIMBURSEMENT RECORD:

Non Other	Where? Outsides?	Purpose-Who was involved?	Is when paid?	Reimbursed by whom?	Amount
--------------	---------------------	------------------------------	------------------	------------------------	--------

Wk 8 - Day 55, 310 Lst

FRIDAY
FEBRUARY 24, 1995

28

DIARY AND WORK RECORD

NAME OR PROJECT

DESCRIPTION

8

9

Williamson Ptz

10

Bob Enock / Bill Davis

Jesse W. Clemons

11

Drying on impression / 45 min
Nothing showing on densitometer

12

Wet Trap / Dry trap / HV Trap

13

Varnish definite advantage.

14

Mechanical shutter for edge

15

7 color every unit.

16

HV on LYL only.

17

18

19

20

21

22

Mr. B - Day 50 305 Left

WEDNESDAY
MARCH 1, 1988

31

DIARY AND WORK RECORD

TIME	NAME OR PROJECT	DESCRIPTION
8:		
9:	Advanced Litho. Tubes Donated	Needs to look at E2
10:	metallic application	a sap.
11:		He continues to want to work with E2.
12:		Buckin got great future.
1:	Terry Meyer - GAC	Need to come to school
2:		
3:	Ron Gray - Bofors	Heriberg Egypt
4:		Heid. 74 is of strong interest over next 12 months.
5:		

W000905

TUESDAY
MARCH 7, 1995
APPOINTMENTS & SCHEDULED EVENTS

Bill Davis

- ① Venta - food control on delivery?
- ② 4:1 complete Wednesday.

TO BE DONE TODAY (ACTION LIST)

DI Charge.

EXPENSE & REIMBURSEMENT RECORD:

W0000907

FRIDAY		31
Wk 10 • Day 69 296 Left		MARCH 10, 1995
DIARY AND WORK RECORD		
TIME	NAME OR SUBJECT	DESCRIPTION
8	Tim Jensen	
	Bill Davis	
9	Bob Enrick	
	Williamson P.C.	
10	delay off get all sheets	
11	H	
12		
1		
2		
3		
4		
5		

W0000907

Wk 14 • Day 94, 271 Left

TUESDAY
APRIL 4, 1995

30

DIARY AND WORK RECORD

TIME	NAME OR PROJECT	DESCRIPTION	TIME
8:00	WILLIAMSON - MD. BOTH.		
9:00	DICK MARSHAL		
	CHUCK G. LAY		
10:00			
11:00			
12:00			
1:00			
2:00			
3:00			
4:00			
5:00			

W000908

THURSDAY
APRIL 6, 1995

APPOINTMENTS & SCHEDULED EVENTS

NAME PLACE SUBJECT

TO BE DONE TODAY (ACTION LIST)

1. Marking - Gating tower
when not cutting
2. Exclusivity - E.N.C.V.
USA. - 12 months - 1 year?

EXPENSE & REIMBURSEMENT RECORD:

Date Description Purpose and Amount To Whom Reimbursed Amount

30

APRIL 6, 1995

Page 2

DESCRIPTION
$$400 \text{ CFM} = 1 \text{ ton.}$$

What is current an ~~ex~~

Bill Davis
Jim Johnson

[illegible]

~~D) Visite - Verflechtung~~

E: HT Canvas Alex -

Vespe Williamson.

4:30 Jim Johnson

30

DIARY AND WORK RECORD

hrs	NAME OF PROJECT	DESCRIPTION
8:		
9:		
10:	Williamson Ag Co.	
11:	Bill Davis / Tim Johnson	Bob Enck.
12:	Caslet Peak.	
	24 hrs in a day center	
1:	Tols to run Friday.	
	Testing Thursday.	
2:	Anchor reading white?	Gold?
3:	Tramming	
4:	Water. 23.	
5:		

TUESDAY
MAY 2, 1995
APPOINTMENTS & SCHEDULED EVENTS

NAME PLACE SUBJECT

TO BE DONE TODAY (ACTION LIST)

1. ~~W. Kroger~~ ✓
2. ~~Great Western~~ ✓
3. ~~Graphic Arts to do today / GATF~~
4. ~~Goos Back.~~
5. ~~HV 11/2/95~~
6. ~~Obtaining order gold - Bill~~
7. ~~Exclusivity:-~~
8. ~~Timeline - 2:15 -~~
9. ~~Posters/Post Cards~~

EXPENSE & REIMBURSEMENT RECORD:

Pulled job, fit and problem.
 excessive team -
 picking

TUESDAY MAY 2, 1995		30
Wt 18 • Day 122, 243 Lft		
DIARY AND WORK RECORD		
TIME	NAME OR PROJECT	DESCRIPTION
8	label	
9	Caitan	
9	Greetings	
10	1st Period	N. America
10		+ A2, CO.
11		1st Interstation 90 days
11		to install 1 and 2 yrs.
12		
1.30	Terse W. Olmson.	
	Bill Davis	
2	352 Har. Ex	take back.
3		leafing silver Chen
3		to WPC.
4		UV lamps moved down.
5	PEH	331.5 1st down
		cover E2.
		UV for 8 color

(#25)

THE SKELETON



US005370976A

United States Patent [19]
Williamson et al.

[11] **Patent Number:** 5,370,976
[45] **Date of Patent:** Dec. 6, 1994

- [54] **METALLIC COLOR PRINTING PROCESS**
[75] **Inventors:** Jesse S. Williamson, Dallas; George V. Barnaby, Irving; Gary V. Doughy, Dallas, all of Tex.
[73] **Assignee:** Williamson Printing Corporation, Dallas, Tex.
[21] **Appl. No.:** 887,510
[22] **Filed:** May 22, 1992
[51] **Int. Cl.:** G03C 7/00; G03C 5/00; G03F 9/00; H04N 1/21
[52] **U.S. Cl.:** 430/22; 430/30; 358/798; 358/534; 358/536
[58] **Field of Search:** 430/358, 359, 30, 293, 430/301, 21, 143, 43, 44, 347, 106/19 R; 358/75, 80, 534, 536, 298

References Cited

U.S. PATENT DOCUMENTS

3,663,221	5/1972	Higgins et al.	430/22
4,011,812	3/1977	Julian Lecha	101/177
4,149,183	4/1979	Pelliar et al.	358/75
4,180,407	12/1979	Gibson et al.	106/26 A
4,729,909	3/1988	Noack	427/288
4,758,886	7/1988	Rylander	358/80
4,918,622	4/1990	Granger et al.	358/298
4,924,301	5/1990	Surbrook	358/75
4,989,079	1/1991	Ito	358/80
4,989,080	1/1991	Ito	358/75
5,053,887	10/1991	Thompson	358/457
5,144,419	9/1992	Nakatsuka et al.	358/75
5,166,809	11/1992	Surbrook	358/456

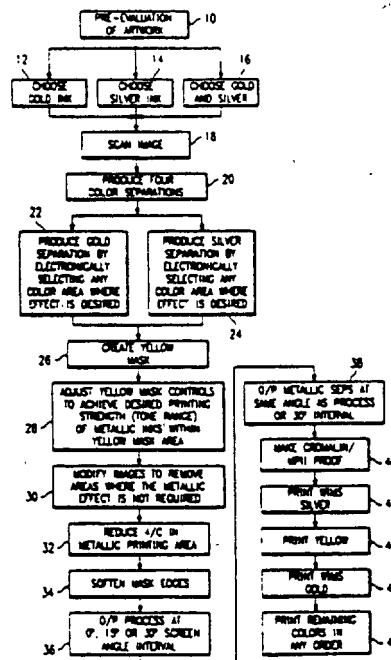
OTHER PUBLICATIONS

Reproduction Review, Oct. 1965, pp. 6, 10.
The Photoengraver Bulletin, Nov. 1949, pp. 43-44
"Pantone® Metallic Integrated Process Color Selector", by Pantone Metallic-Buntdruck-Farbskala (Pantone).
"Lithographic Guidelines For Metallic Integrated Process Printing" (Crofield).
Primary Examiner—Charles L. Bowers, Jr
Assistant Examiner—J. Pasterczyk
Attorney, Agent, or Firm—Jones, Day, Reavis & Pogue

ABSTRACT

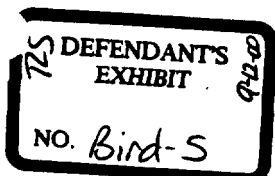
A method of reproducing on a substrate an image incorporating metallic inks involves scanning (18) the image to be reproduced and creating (20) four color separations of the scanned image. Metallic gold and/or metallic silver color separations (22, 24) are created by electronically selecting any color area where the effect is desired. Next, the color separations are edited by creating (26) an electronic yellow mask of the image and adjusting (28) the desired tonal range of the metallic areas. The mask edges of each color separation can also be softened (34). The scanner then outputs (36, 38) the separations to film. The image is then reproduced by printing each of the process color separation films (44, 48) and the metallic separation films (42, 46) onto a substrate.

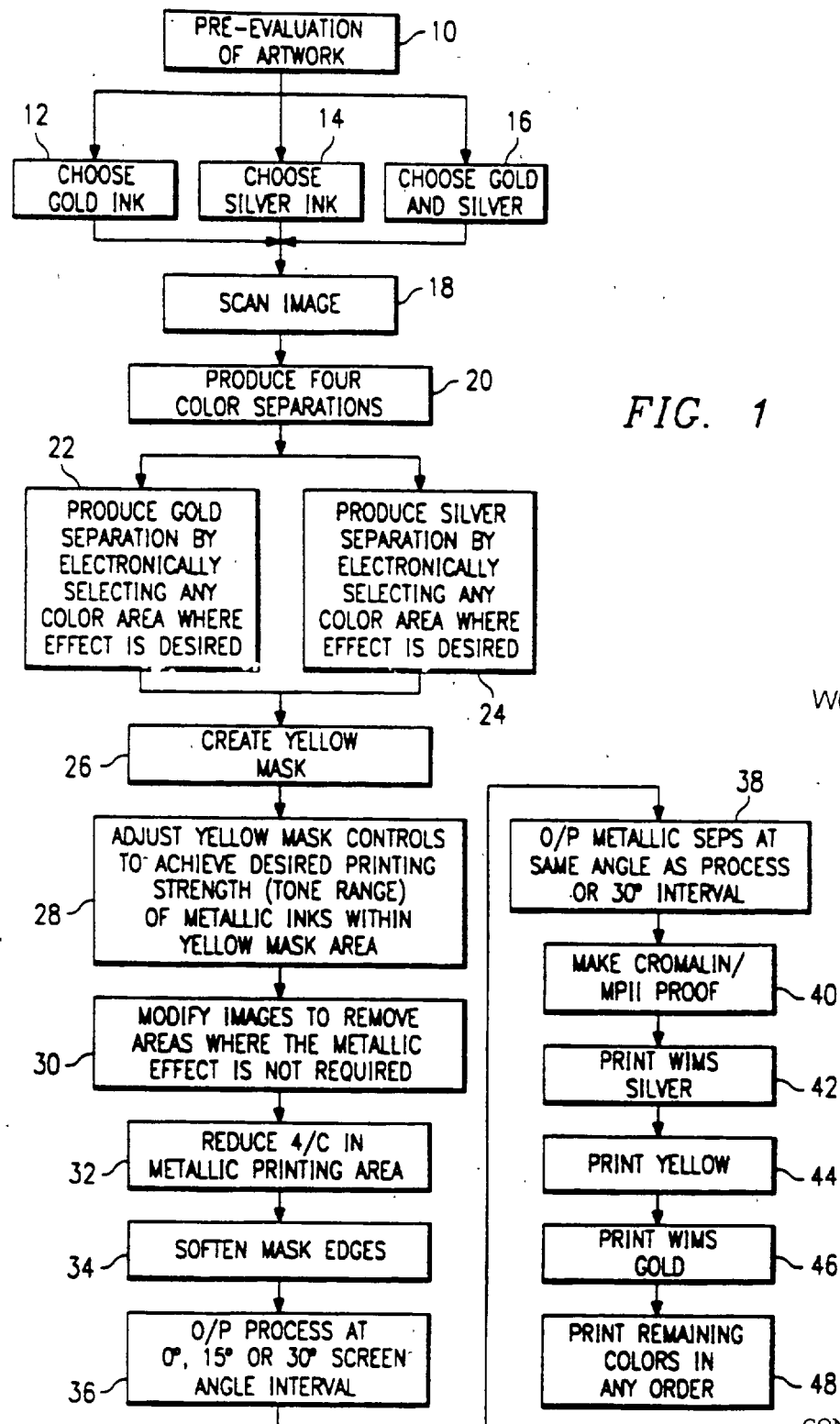
12 Claims, 2 Drawing Sheets



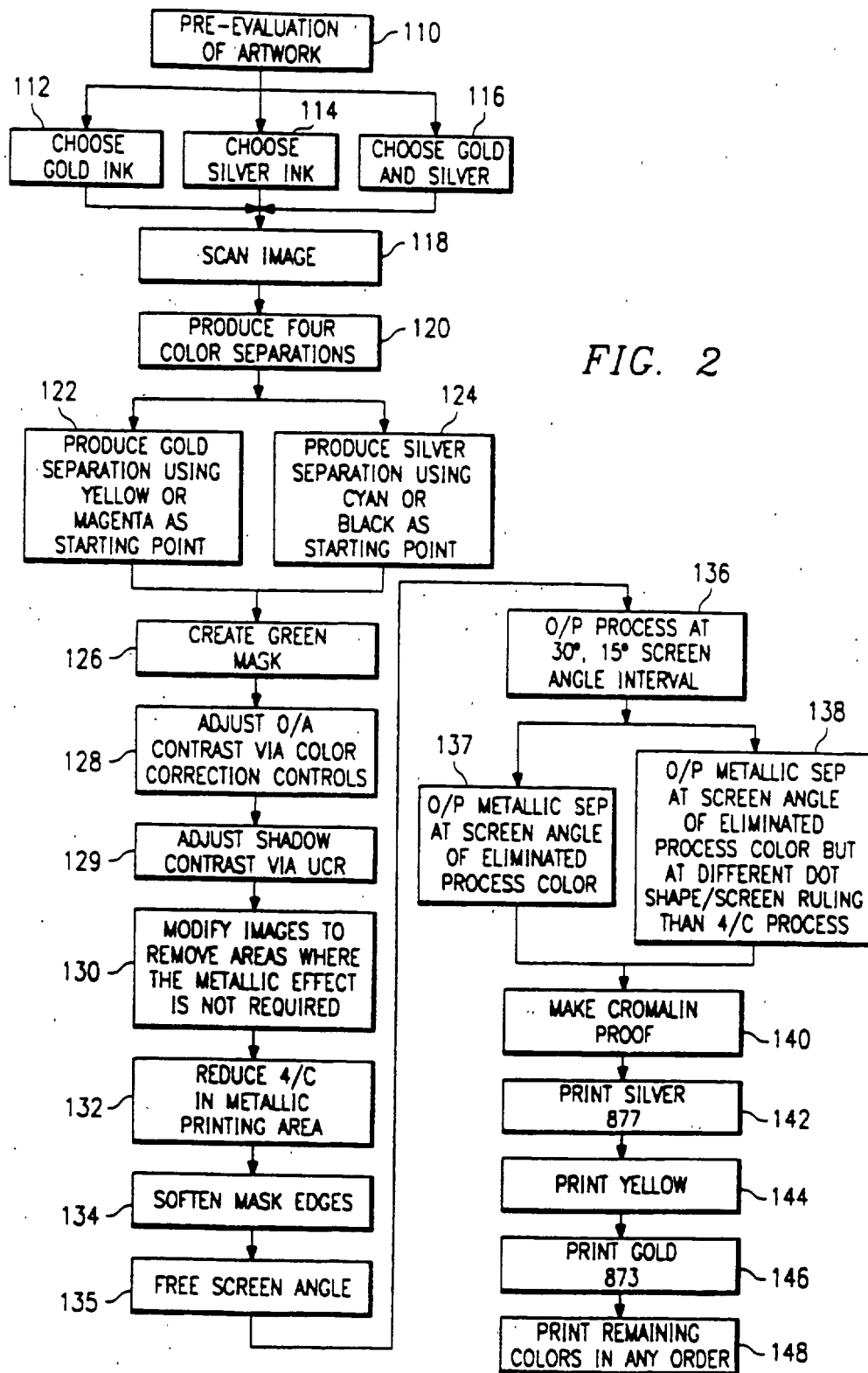
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W001119





W001120



W001121

2

White - Magenta - Cyan = Blue
 White - Magenta + Yellow = Red
 White + Yellow + Magenta + Cyan = Black

Moreover, each subtractive primary color when added with white produces that same subtractive primary color.

The objective in printing is to produce yellow, magenta, and cyan printing plates that are negative records of the amounts of blue, green, and red in the original. This is achieved by first photographing the original, in turn, through blue, green, and red filters. These films may then be converted into a halftone dot image suitable for a given printing process. The films are then used to make the image carriers, which may be plates, cylinders, or stencils. Each plate is inked with its appropriate ink, which is then transferred to a white substrate

The image produced is largely dependant upon dot size and orientation. Orientation is defined primarily by the screen angle of the dot. The screen angle is the angle at which the rulings of a halftone screen are set when making screened images. In other words, the screen angle of a dot is the angle of the line which bisects the often elliptical dots. Standard screen angles have been established for various colors of dots: Magenta (45°), Cyan (75°), Yellow (90°), Black (105°) The interaction of screen angle, color, and dot size effect the quality of the reproduction.

30 Printing metallic colors, such as metallic gold and metallic silver, poses additional problems. Gold has typically been treated as a shade of yellow, while silver has been treated as a shade of gray. Thus the brilliance of these colors is diminished by the blending of hues which occurs in a four color printing system.

A system known as Metallic Integrated Printing Process (MIPP) has been developed for the reproduction of metallic colors by Eckart-Werke Metal Pigments and Powders of Furth, Bayern, Germany. This system requires numerous steps. First, a designer marks-up the artwork to be copied to designate those areas where the MIPP system is required, i.e. metallic colored areas. Next, a conventional four color separation is produced of the artwork. Each separation is then compared to the original artwork to see which separation gives the best representation of the metallic colors. Based on the object color in the original photograph and the color requirements of the final print, a determination is then made whether gold or silver is required. Most shades of gold can be obtained from silver and yellow. However, a high percentage of yellow on silver greatly reduces the metallic brilliance. In addition, silver has a grey value of approximately 30% that tends also to reduce the metallic brilliance and thereby duty colors.

After the four color separations are made, two separations used to print the metallic inks must be developed from two of the four separations. Typically the cyan or black separation will give the best basis for developing the silver separation and either the yellow or magenta for the gold separation. The selected separations are then duplicated to become the gold and silver separations. These separations may require modification to remove image areas where a metallic effect is not required. Comparison with the original transparency may indicate the need to enhance some image areas so as to improve the final metallic effect. The MIPP system anticipates the softening of mask edges of the metallic colors to avoid sharp cut-out effects when the final result is printed. In practice, the task of softening of

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W001122

mask edges can be handled using electronic image processing equipment.

With the MIPP system, a screen angle must be freed for each of the metallic inks to avoid problems of screen clash and resulting moire effects. This can be accomplished by using achromatic or Under Color Removal, ("UCR") color separation techniques where the process color with the lowest value is eliminated in favor of black. UCR involves the technique of reducing the cyan, magenta, and yellow content in neutral grey shadow areas of a reproduction and replacing them with black ink so that the reproduction will appear normal but will use less process color ink. (From the Complete Color Glossary by Miles Southworth, Thad McIlroy and Donna Southworth, Copyright 1992, Published by The Color Resource, Livonia, N.Y. ISBN 1-879847-01-9) Often the cyan will have the lowest value and is the color to eliminate. Since both gold and silver have a process color value, the four conventional separations will need to be modified if the finished print is not to look over-colored or dirty. For example PANTONE 873, the MIPP gold standard, has a process color value of approximately 65% yellow, 25% magenta and 5% cyan. So if the gold areas are to look realistic these colors must be reduced proportionately. The separations may also require modification as the metallic inks have a grey scale value and a failure to take this into account may result in a dirtying of the final colors due to a reduction in their metallic brilliance.

A MIPP image is printed using standard screen angle intervals of 30° or 15°. The screen angle used for a metallic ink is the same as that for the process colors eliminated in favor of a metallic ink. The MIPP system may use different dot shapes to reduce the risk of screen clash. A round dot, with no preferred direction, is typically used for the metallic ink, while an elliptical dot works for the standard process inks. The color standards chosen for MIPP come from the PANTONE System of matched metallic inks, with PANTONE 873 as the gold standard and PANTONE 877 as the silver standard.

Because metallic inks are opaque, they are normally printed before the transparent process colors. But with MIPP the sequence is changed slightly so that the first three colors down are silver, yellow, and gold, respectively. The remaining three process colors are printed in any order. The first three colors, in this order, are very important if the finished print is to look realistic. The use of yellow on silver is necessary to obtain yellow, green and orange metallic effects. Yellow, under gold, is also necessary to maintain the correct tonal values in the highlight areas. Yellow, printed in this way, provides a transition from gold to non-metallic pans of the image. On the other hand, if yellow is printed on top of the gold, there is a loss of metallic sheen without any compensating color benefit.

In summary, the MIPP system presents several disadvantages. First, it requires excessive handwork to create the color mash. Second, the MIPP system requires the elimination of one of the subtractive process colors to free up a screen angle for a metallic color. Third, the MIPP system only allows the printing of four screened colors in any given area. Last, the PMS 873 standard gold ink used by the MIPP system is a dirty, or less brilliant gold ink. This dirty look limits the gold color reproduction to the inherent dirty look even if no other color ink is printed in that area. This dirty look also

necessitates additional color correction of the subtractive primaries. Therefore, a need exists for a printing process which maximizes the appearance of metallic colors. Such a process should allow the use of six colors printed at four screen angles. Moreover, such a process should not limit the number of colors in any given area to four as with the MIPP System.

SUMMARY OF THE INVENTION

The present invention relates to the Williamson Integrated Metallic System (WIMS) developed to allow six color printing using yellow, magenta, cyan, black, metallic silver, and/or metallic gold. The WIMS System creates a realistic metallic gold or metallic silver effect using the subtractive primary colors, black, silver and/or gold. The WIMS method comprises a number of steps. The subject to be reproduced is first scanned by a standard scanner and four color separations are created. The original art is then edited to achieve the required metallic effect. Editing comprises the steps of creating a yellow mask, reviewing an electronic version of the image produced by the scanner, determining the amount of contrast between heavy and light metallic regions on the image by one skilled in the art based on past experience, and then sending that contrast information back to the scanner. A "yellow mask" is created to isolate areas where a metallic effect is desired. This "yellow mask" allows the operator to select these areas based on the color and tonal region of the original. For example, those areas appearing neutral are appropriate for silver metallic, while those areas appearing high yellow with a red component are appropriate for the gold metallic. Additional modification of dot size in these isolated areas may be required to avoid moire and reduction in metallic brilliance of the final colors. These colors can be printed at four screen angles: cyan (75°), magenta (45°), silver (45°), gold (75°), yellow (90°), and black (105°).

In the WIMS System, a cleaner, or more brilliant gold color ink is used, wherein the process color value is less than 25% for magenta and less than 5% for cyan. This should diminish any dirtiness caused by the process color values of adjacent primary colors. Additionally, any harsh edge effects caused during printing may be softened during the electronic masking stage. During printing, the silver separation can be printed at the same screen angle as the magenta, while the gold separation can be printed at the same screen angle as the cyan separation.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention, and for further details and advantages thereof, reference is now made to the following Detailed Description taken in conjunction with the accompanying drawings, in which:

FIG. 1 illustrates a flow chart of the WIMS System for reproduction of metallic color, and

FIG. 2 illustrates a flow chart of the prior art MIPP System.

DETAILED DESCRIPTION OF THE DRAWINGS

The present invention relates to a metallic color printing process, also known as the WIMS System, that overcomes many of the disadvantages found in the prior art. Referring to FIG. 1, a flow chart illustrates the steps involved in the present method.

A first step involves pre-evaluation at step 10 of the subject to determine desired effects and proper placement of metallics in process reproduction. Metallic gold can be chosen at step 12, metallic silver can be chosen at step 14, or a combination of both metallic gold and metallic silver can be chosen at step 16. Next, the image can be scanned at step 18 by a scanner which, in turn, produces at step 20 four color separations which are electronically viewed on the scanner display. The scanner acts as both an input device and an output device. In other words, the artwork is input to the scanner. The scanner can then output color separations or film used to recreate the artwork. The scanning step involves the application of 75% to 100% to the scanner set-up and the scanning of the image. Then, the PCR is removed from the scanner set-up and the image is scanned to an "Imagedit", an electronic color correction machine, produced by the Crosfield Co. of Hemel Hempstead, England.

The original artwork is evaluated in a well known manner by one skilled in the art to determine the color areas in which the metallic effect is desired. A gold separation can be produced at step 22 by electronically selecting any color area where the effect is desired. Likewise, a silver separation can be produced at step 24 by electronically selecting any color area where the effect is desired. Typically, the cyan or black areas of the original art will be the basis for developing the silver printing whereas yellow or magenta areas of the original art will form the starting point for creating the gold printing. It is emphasized that either the gold or silver separations may be produced by selecting any color area where the effect is desired.

Using the Crosfield Imagedit, a "yellow mask" can then be created at step 26 to isolate the areas where a metallic effect is desired from the rest of the separation. The "yellow mask" function gives the ability to select the desired areas electronically based on the tonal region or bandwidth of the original as well as the desired color region. Creating a yellow mask entails several steps. First, an electronic version of the image produced by the scanner displays the contrast between a heavy metallic region and a light metallic region on the image. For example, neutrals are appropriate for silver, while high yellows with a red component are appropriate for gold. The yellow mask controls can be adjusted at step 28 to achieve desired printing strength (tonal range) of metallic inks within the yellow mask area. These controls allow the adjustment of slope, gain, and rolloff of the image within the yellow mask area.

Next, the Imagedit computer creates six revised color separations in a well-known manner; one each for yellow, cyan, magenta, black, gold and silver. Once these electronic masks are created, further modification at step 30 of the isolated area may be required. For example, such modifications may increase or reduce the printing dot size of the metallic separation and/or adjust at step 32 the amount of four color process ink printing over the newly created metallic to compensate for the reduction in brilliance caused by the additional metallic color in the reproduction. Additionally, in a given original, there may be areas of similar color where a metallic effect is desired in one area but not the other. For example, a gold watch requires a metallic gold, while a golden retriever would not. Due to this anomaly, further electronic manipulation of the image may be required to eliminate metallic ink in unwanted areas. Moreover, because all masking is performed electroni-

cally, it is possible to soften at step 34 any harsh edge effects in the final reproduction via mask smoothing or tonal integration techniques.

Next, this information is sent back to the scanner which outputs at step 36 the subtractive process colors and the metallic separations. The MIPP standard for screening is to eliminate (by hand masking) one of the process colors in metallic areas to free-up a screen angle, or to produce the metallic separations at a line screen resolution different than the process colors to reduce moire effects. However, in the WIMS process, the subtractive process colors are output at step 36 at 0°, 15°, and/or 30° screen angle intervals. An interval is the spacing between any two screen angles. The metallic color separations are output at step 38 at the same angles as the subtractive process colors or at 30° intervals. The gold separation can be produced at the same screen angle as the cyan separation. Likewise, the silver separation can be produced at the same angle as the magenta separation. Therefore, with WIMS reproductions, six colors can be printed at four screen angles. For example, cyan can be printed at 75°, magenta at 45°, silver at 45°, gold at 75°, yellow at 90°, and black at 105°. Both process and metallic separations are produced at the same line screen resolution. Typically, there are no problems with moire effect.

The next step involves metallic inks, a gold ink, a silver ink, or both gold and silver. The Pantone MIPP standard for gold ink is PMS 873. This ink printed solid has a process color value of approximately 65% yellow, 25% magenta and 5% cyan. For WIMS reproduction, however, a much more brilliant gold ink is used, wherein the magenta and cyan process equivalents are greatly reduced. This was selected under the rationale that a pure gold ink area of WIMS gold could be reduced in brilliance, but a pure PMS 873 ink area could not be made any more brilliant than the inherent bronze color of the ink. This same color compensation theory also applies to silver areas where a calculated reduction in cyan or black generally occurs.

Prepress proofing at step 40 is accomplished via a combination of 3M Matchprint II (for process colors) and Dupont Cromalin (for metallics). After proofing, the artwork is reproduced by first printing at step 42 the WIMS standard for silver, then printing at step 44 yellow, then printing at step 46 the WIMS standard for gold, and finally printing at step 48 the remaining subtractive primary colors in any order.

FIG. 2 provides a flow chart of the MIPP process which is discussed in greater detail in the Background Section. In sum, the designer marks up the artwork to be reproduced to show where MIPP is required and the image is scanned at step 118. Based on the object color in the original photograph and the color requirements of the final print, a determination is then made whether to choose at step 112 gold, choose at step 114 silver, or to choose at step 116 both silver and gold. The artwork is then scanned at step 118 by a scanner and a standard four-color separation is produced at step 120. Each separation is compared to the original to determine which gives the best representation of the metallic colors. A gold separation is next produced at step 122 using the screen angle of the process color that was eliminated in that area, as will be discussed in greater detail. Likewise, a silver separation can also be produced at step 124 using the screen angle of the process color that was eliminated in that area.

A green mask is created at step 126 with the scanner and viewed on the scanner display. The overall contrast of the green mask can be adjusted at step 128 via the color correction controls. Shadow contrast can then be adjusted via undercolor removal (UCR). Next, the image is modified at step 130 to remove areas where the metallic effect is not required. The level of the four subtractive process colors can be reduced at step 132 in the metallic printing area. Mask edges can then be softened at step 134.

Next, a screen angle must be freed at step 135 for each of the metallic inks to avoid problems of screen clash and resulting moire effects. In other words, in any one area where a metallic ink is used, the subtractive primary color with the same screen angle must be eliminated or made solid. Thus, no more than four screened colors may appear in any one area of the reproduction. The scanner outputs at step 136 the subtractive process colors to film at 30° and 15° intervals. The scanner can then output at step 137 the metallic separations at a screen angle of an eliminated process color. Alternatively, the scanner can output, at step 138 the metallic separations at the screen angle of the eliminated process color but at a different dot shape and/or screen ruling than the four subtractive process colors. Prepress proofing at step 140 is accomplished. After proofing, the artwork is reproduced by first printing at step 142 the PMS 877 standard for silver, then printing at step 144 yellow, then printing at step 146 the PMS 873 standard for gold, and finally printing at step 148 the subtractive primary colors in any order.

Although preferred embodiments of the invention have been described in the foregoing Detailed Description and illustrated in the accompanying drawings, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications, and substitutions of parts and elements without departing from the spirit of the invention. Accordingly, the present invention is intended to encompass such rearrangements, modifications, and substitutions of parts and elements as fall within the scope of the invention.

We claim:

1 In a method of half-tone dot printing a reproduction of a scanned image on a substrate with the four subtractive process colors of magenta, cyan, yellow, and black in a given area of the scanned image at only four screen angles, an improved method of incorporating metallic colors in said reproduction, the improvement comprising the steps of:

printing at least one metallic color in said given area at a selected one of the only four screen angles; and

printing at least one of said four subtractive process colors in said given area at the same screen angle as said at least one metallic color such that said at least one metallic color and one process color are printed in said given area at the same one of said four screen angles so as to enable at least five colors to be printed at only said four screen angles.

2 A method as in claim 1 further including the steps of:

printing a second metallic color in said given area at a second one of said four screen angles; and

printing a second one of said four subtractive process colors in said given area at the same second one of said four screen angles as said second metallic color so as to have an additional metallic color and an additional process color printed in said given area

at said second one of said four screen angles so that up to six colors are printed at only said four screen angles.

3 The method of claim 1 of reproducing a scanned image on a substrate including incorporating metallic colors and further comprising the steps of

producing four process color separations of the scanned image, each at one of said four screen angles,

producing at least one metallic color separation at the same screen angle as a corresponding first one of the four screen angles of the process color separations in said given area;

editing each process color separation and the at least one metallic color separation to obtain metallic color separation information;

outputting each process color separation to film creating a process color separation film,

outputting the at least one metallic color separation to film creating a first metallic color separation film, and

printing a reproduction of the scanned image on a substrate using the process color separation films and the at least one metallic color separation film such that both a metallic color separation and a process color separation are produced at the same screen angle.

4 The method of claim 3 of reproducing a scanned image on a substrate including metallic colors and further comprising the steps of

producing a second metallic color separation at the same screen angle as a corresponding second one of the four screen angles of the process color separations in said given area,

editing the second metallic color separation to obtain metallic color separation information,

outputting the second metallic color separation to film creating a second metallic color separation film; and

printing a reproduction of the scanned image on a substrate using the process color separation film and the first and second metallic color separation films such that said first metallic color separation and a first process color separation are produced at an identical first screen angle and the second metallic color separation and second process color separation are produced at a second identical screen angle so as to enable up to six colors to be printed in the given area in only four screen angles.

5 The method of claim 4 wherein the step of producing a first and a second metallic color separation further comprises the steps of:

producing a gold metallic color separation as the first metallic color separation, and

producing a silver metallic color separation as the second metallic color separation.

6 The method of claim 4 wherein the step of producing a first and a second metallic color separation further comprises the steps of:

producing a silver metallic color separation as the first metallic color separation; and

producing a gold metallic color separation as the second metallic color separation.

7 The method of claim 4 wherein the step of editing further comprises the steps of.

reviewing an electronic version of the scanned image to determine regions of the image where metallic color is to be added.

creating a yellow mask for the given area to enable isolation of any region therein where metallic color is to be printed.

electronically adjusting the amount of contrast between the isolated regions to achieve a desired metallic color contrast between said isolated regions so as to obtain metallic color separation information and

sending the metallic color separation information back to the scanner to provide half-tone dot signals.

8 The method of claim 4 wherein the step of outputting the at least one metallic color separation further comprises the step of outputting the first metallic color separation at the same screen angle as a first process color separation or at a 0°, 15°, or 30° interval therefrom

9 The method of claim 4 wherein the step of outputting the second metallic color separation further com-

prises the step of outputting the second metallic color separation at the same screen angle as a second process color separation or at a 0°, 15°, or 30° interval therefrom

10 The method of claim 3 wherein the step of editing further comprises softening an image edge of the process color separations and metallic color separations.

11 The method of claim 3 wherein the step of outputting the process color separations comprises outputting the process color separations onto film at 0°, 15°, or 30° screen angle intervals.

12 The method of claim 1 wherein the step of printing comprises.

(a) printing the metallic silver onto the substrate.

(b) printing yellow onto the substrate;

(c) printing the metallic gold onto the substrate.

(d) printing the remaining colors onto the substrate in any order

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United States Patent [19]

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[54] COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING APPARATUS
AND PROCESS

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[21] Appl. No.: 515,097

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[51] Int. Cl.⁶ B41M 1/18; B41M 7/00;
B41M 1/04; B41F 23/00

[52] U.S. Cl. 101/141; 101/181; 101/183;
101/424.1; 101/424.2; 101/479; 101/483;
101/491; 101/DIG. 49

[58] Field of Search 101/135-138,
101/141-143, 450.1, 174, 180, 181, 183,
416.1, 424.1, 424.2, 479, 491, DIG. 29,
DIG. 49, 483

[56] References Cited

U.S. PATENT DOCUMENTS

2,499,870	3/1950	Luehrs	101/138
2,988,989	6/1961	Crawford	101/152
3,072,050	1/1963	Wolf	101/DIG. 49
4,011,812	3/1977	Lecha	101/176
4,056,056	11/1977	Gion	101/152
4,180,407	12/1979	Gibson et al.	106/26
4,186,661	2/1980	Vien	101/178
4,373,442	2/1983	Dahlgren et al.	101/207

4,373,443	2/1983	Matela et al.	101/221
4,417,516	11/1983	Fischer	101/181
4,421,027	12/1983	Fischer	101/142
4,437,402	3/1984	Fischer	101/181
4,610,201	9/1986	Jeschke	101/DIG. 49
4,729,909	3/1988	Noack	427/288
4,758,886	7/1988	Rylander	358/80
4,796,556	1/1989	Burd	118/46
4,989,079	1/1991	Ito	358/80
4,989,080	1/1991	Ito	358/80
5,144,419	9/1992	Nakatsuka et al.	358/75
5,178,678	1/1993	Koehler et al.	118/46
5,184,556	2/1993	Schneble	101/483
5,370,976	12/1994	Williamson et al.	430/358

OTHER PUBLICATIONS

"Pantone® Metallic Integrated Process Color Selector. Pantone Metallic-Bunddruck-Farbkala". The Pantone Library of Color. 201 Pantone, Inc. 1990. pp. MIPP VI-VIII.

Primary Examiner—Stephen R. Funk

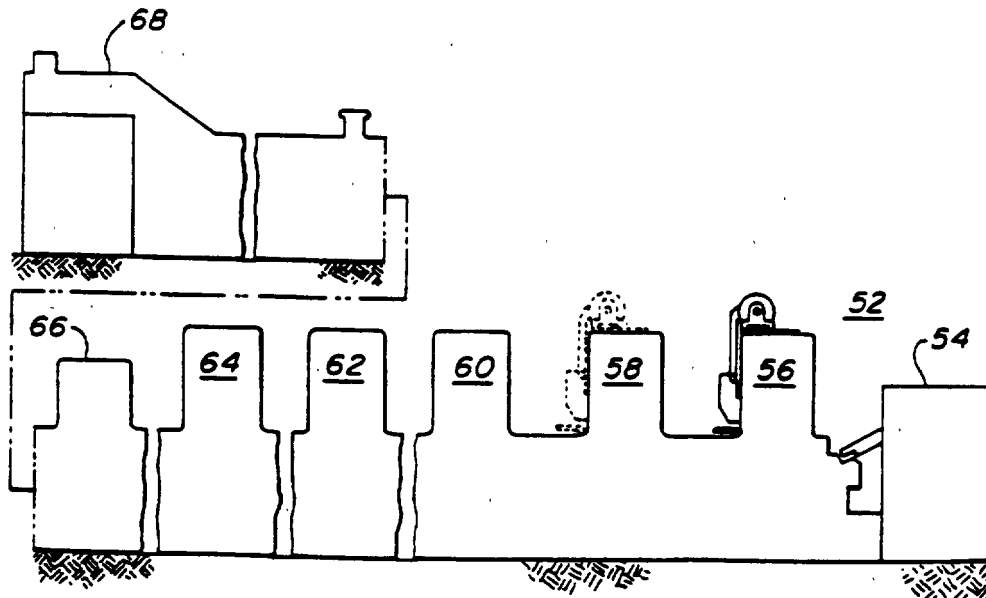
Attorney, Agent, or Firm—Jones, Day, Reavis & Pogue

[57]

ABSTRACT

A combined lithographic/flexographic printing process having a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process. One of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using an offset lithographic process in the continuous in-line process.

41 Claims, 1 Drawing Sheet

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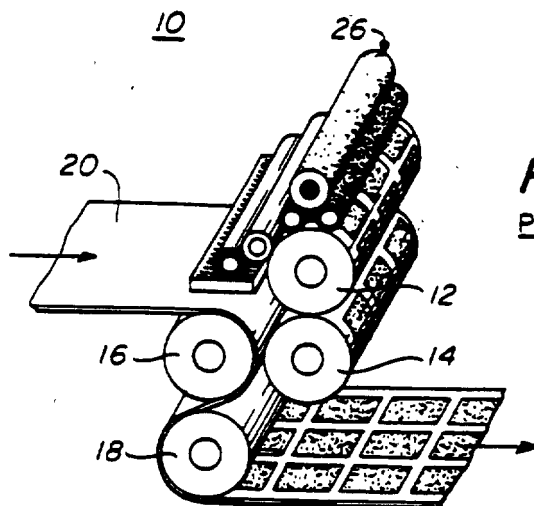


FIG. 1
PRIOR ART

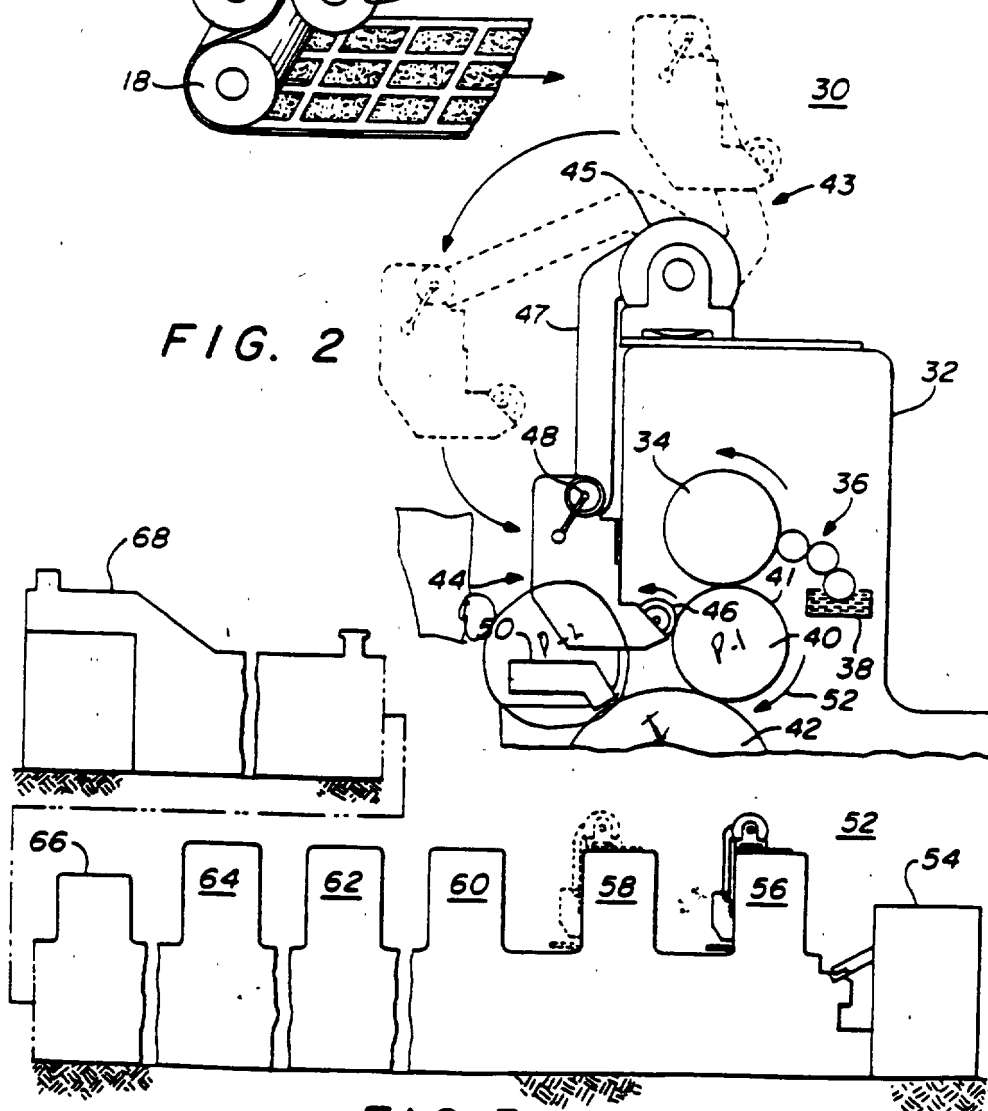


FIG. 3

COMBINED LITHOGRAPHIC/ FLEXOGRAPHIC PRINTING APPARATUS AND PROCESS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates in general to printing machines and processes and in particular to a combined lithographic/flexographic in-line printing apparatus and process.

2. Description of Related Art

As used herein, the following terms have the meanings indicated:

ANILOX ROLLER

A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In flexo presswork, anilox rollers transfer a controlled ink film from the rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remountable glue units and to create "scratch-and-sniff" perfume ads.

ANILOX SYSTEM

The inking method commonly employed on flexographic presses. An elastomer-covered fountain roller supplies a controlled ink film from the ink pan to the engraved metering roller. After ink floods the metering roller, the fountain roller is squeezed or wiped usually with a doctor blade to remove the excess ink. The ink that remains on the metering roller is then transferred to the rubber printing plate.

COATER

A device with a pan to contain the coating material, a pan roller partially immersed in the coating material contained in the pan, and a coater roller to meter off a uniform film of the coating material and apply it to the printing plate.

COATING

An unbroken, clear film applied to a substrate in layers to protect and seal it, or to make it glossy.

FLEXOGRAPHIC INK

A quick-drying, fluid ink that is highly volatile or an ink that can be water based and nonvolatile.

FLEXOGRAPHY

A method of rotary letterpress printing characterized by the use of flexible, rubber, or plastic plates with raised image areas and fluid, rapid-drying inks.

HALFTONES

Dot-pattern images that have the appearance of continuous-tone images because of the limited resolving power of the human eye. This limitation accounts for an optical illusion; small halftone dots, when viewed at the normal reading distance, cannot be resolved as individual dots but blend into a continuous tone.

LITHOGRAPHIC PLATES

A lithographic plate is precoated with a light-sensitive or otherwise imageable coating, and the separation between the image and nonimage areas is maintained chemically. The image areas must be ink receptive and refuse water and the nonimage areas must be water receptive and refuse ink. The wider the difference maintained between the ink receptivity of the image areas and the water receptivity of the nonimage areas, the better the plate will be, the easier it will run on the press, and, consequently, the better the printing. There are several types of lithographic plates. The plate is an image carrier that is said to be planographic, or flat and smooth.

LITHOGRAPHY

A printing process in which the image carrier or plate is chemically treated so that the image areas are receptive to ink.

5 OFFSET PRINTING

An indirect printing method in which the inked image on a press plate is first transferred to a rubber blanket, that in turn "offsets" the inked impression to a press sheet. In offset lithography, the printing plate has been photochemically treated to produce image areas receptive to ink.

SLURRY

A water suspension of fibers or the suspension of pigment and adhesive used to coat papers. It may also include a suspended metallic material such as uniform-sized metal particles or nonuniform-sized metal particles.

ULTRAVIOLET INKS

Printing inks containing an activator that causes the polymerization of binders and solvents after exposure to a source of ultraviolet radiation.

Offset lithography is a process that is well known in the art and utilizes the planographic method. This means that the image and nonprinting areas are essentially on the same plane of a thin metal plate and the distinction between them is maintained chemically. There are two basic differences between offset lithography and other processes. First, it is based on the principle that grease and water do not mix. Second, the ink is offset from the first plate to a rubber blanket and then from the blanket to a substrate on which printing is to occur such as paper.

When the printing plate is made, the printing image is made grease receptive and water repellant and the nonprinting areas are made water receptive and ink repellant. The plate is mounted on the plate cylinder of the press which, as it rotates, comes in contact successively with rollers wet by a water or dampening solution and rollers wet by ink. The dampening solution wets the nonprinting areas of the plate and prevents the ink from wetting these areas. The ink wets the image areas which are transferred to the intermediate blanket cylinder. The inked image is transferred to the substrate as it passes between the blanket cylinder and the impression cylinder. Transferring the image from the plate to a rubber blanket before transfer to the substrate is called the offset principle.

One major advantage of the offset principle is that the soft rubber surface of the blanket creates a clearer impression on a wide variety of paper surfaces and other substrate materials with both rough and smooth textures with a minimum of press preparation.

Offset lithography has equipment for short, medium and long runs. Both sheetfed and web presses are used. Sheetfed lithography is used for printing advertising, books, catalogs, greeting cards, posters, labels, packaging, folding boxes, decalcomanias, coupons, trading stamps, and art reproductions. Many sheetfed presses can perfect (print both sides of the paper) in one pass through the press. Web offset is used for printing business forms, newspapers, preprinted newspaper inserts, advertising literature, catalogs, long-run books, encyclopedias, and magazines.

In offset lithography, the rubber blanket surface conforms to irregular printing surfaces, resulting in the need for less pressure and preparation. It has improved print quality of text and halftones on rough surfaced papers. Further, the substrate does not contact the printing plate thereby increasing plate life and reducing abrasive wear. Also, the image on the plate is right for reading rather than reverse reading. Finally, less ink is required for equal coverage, drying is speeded, and smudging and setoff are reduced. Setoff is a

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condition that results when wet ink on the surface of the press sheets transfers or sticks to the backs of other sheets in the delivery pile.

Thus, in summary, conventional lithographic offset printing machines or presses comprise one or more image printing stations each having a printing roller or a plate cylinder to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with an aqueous damping solution which adheres only to the background areas and inked with oleo-resinous inks which adhere only to the image areas of the plate as wet ink. The ink is offset transferred to the rubber surface of a contacting blanket cylinder and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as paper, with an impression cylinder and the ink air dries by oxidation and curing after passing through a drying station.

It is also known to provide the printing machine with a downstream coating station having a blanket roller associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web.

It is known to apply pattern coatings of protective composition by means of blanket rolls by cutting into the rubber surface of the blanket to create raised or relief surface areas which selectively receive the coating composition from the application roll for retransfer to selected areas of the copy sheets in form of pattern coatings. See U.S. Pat. No. 4,796,556.

Lithographic inks are formulated to print from planographic surfaces which use the principle that grease and water do not mix. Lithographic inks are generally very strong in color value to compensate for the lesser amount applied. They are among the strongest of all inks. The average amount of ink transferred to the paper is about half that of letter press because of the double split of the ink film between the plate cylinder and the blanket cylinder and the blanket cylinder and the substrate on the impression cylinder.

Problems occur in the offset lithographic process when attempting to print certain colors such as white and in particular white on other colors such as yellow because the color white will be faint and not sufficiently strong. In such cases, the sheet or paper or substrate requiring the white ink usually has to be run through the same printer several times before the white becomes sufficiently strong.

Further, such colors are not generally printable in an offset lithographic printing process. This means that the sheets or substrate must be removed and transferred to a second type of machine using the flexographic process to apply greater amounts of ink in successive printing runs to achieve the desired print quality.

A like situation occurs with the printing of slurry-type materials such as "scratch-and-sniff" materials which is a liquid vehicle with a slurry containing an encapsulated essence. Such liquid vehicles, because of the nature of the slurry, must be printed with a flexographic process because the anilox roller can supply greater amounts of ink to the flexo plate on the plate cylinder.

Again, when a liquid vehicle with a slurry having suspended material therein such as metallic particles is to be printed, an offset lithographic process cannot be used without the mixing of the aqueous solution with metallic inks which cause a dulling of the image. Further, the above-mentioned double split of the ink film adds to the dulling of the image. Therefore, to achieve desired results, the printing must take place with a flexographic printing machine.

Thus, liquid opaque coatings or inks such as white colored ink, scratch-and-sniff vehicles, and slurries with metal particles do not achieve desired results when printed in an offset lithographic process and must be transferred from the offset lithographic in-line machines to a separate machine for printing in a separate run.

Such requirements not only hinder the speed of the printing process but also require additional time and thus increase the cost of the printing.

It would be advantageous to have a continuous in-line process in which not only offset lithographic printing could take place but in which, in the same in-line process, liquid printing vehicles including opaque coatings, such as white ink, and slurries containing encapsulated essences or metallic particles could also be printed and dried not only before the printing of the offset lithographic inks but also in which, after the liquid opaque coatings have been applied, an overcoating could be applied to the printed liquid vehicle image using the lithographic process in the continuous in-line process.

SUMMARY OF THE INVENTION

The present invention provides for a continuous in-line printing process having a plurality of successive printing stations for printing color images on a substrate. At least one of the stations prints a liquid vehicle image on a substrate with an opaque coating using the flexographic process and at least one of the successive printing stations printing a second color image over the liquid vehicle image on the printed substrate using the lithographic process in the continuous in-line process.

In the novel inventive system, a single in-line continuous printing process is used. One of the stations may print a liquid vehicle image on a substrate that contains a slurry with an encapsulated essence therein utilizing the flexographic process. Another one of the stations may apply an overcoating over the liquid vehicle image on the printed substrate using a lithographic process. Still another of the stations may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating and thereafter at least one of the successive printing stations prints a color image over the aqueous-based vehicle image using the lithographic offset process in the continuous in-line process.

Whenever a station is used for flexographic printing, a flexographic plate image is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the impression cylinder for printing. An anilox roller is associated with the flexographic plate for supplying the liquid vehicle which may be an aqueous-based vehicle.

In addition, in such case, a high-velocity air dryer is associated with the impression cylinder of one or more of the printing stations where the printing on the substrate is occurring to assist in drying the ink or liquid vehicle printed on the substrate while it is on or near the impression cylinder, before the substrate arrives at the next successive station for additional printing, or before printing occurs at the next successive station.

Thus, if a liquid vehicle such as white ink is to be printed, it is printed with a flexographic process which deposits a greater amount of ink on the substrate, the ink is dried with a high-velocity air dryer while the substrate is on or near the impression cylinder and prior to the substrate being received by the next successive station. If desired, at the next successive station the printing of the white liquid vehicle may again take place thus ensuring the desired intensity of

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whiteness on the substrate. Subsequently, at the next succeeding station a printing may take place on top of the white printing and such printing may continue at the remaining successive stations.

Thus, it is an object of the present invention to provide a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and in which some of the stations print using the flexographic process and other of the stations print utilizing the offset lithographic process.

It is also an object of the present invention to print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process at one printing station and at least one successive printing station printing a color image over the aqueous-based vehicle image using a lithographic process in a continuous in-line process or placing an overcoating over the aqueous-based vehicle image using the flexographic process and then printing at successive stations using the lithographic process.

It is yet another object of the present invention to provide a continuous in-line printing process in which one of the stations prints a liquid vehicle image on the substrate with a slurry containing an encapsulated essence using the flexographic process and at least one of the successive printing stations applies an overcoating over the liquid vehicle image on the printed substrate using the offset lithographic process in a continuous in-line process.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the present invention will be more fully disclosed when taken in conjunction with the following DETAILED DESCRIPTION OF THE PRESENT INVENTION in which like numerals represent like elements and in which:

FIG. 1 is a schematic view of a prior art offset lithography printing station;

FIG. 2 is a generalized depiction of a printing station that may be used either as an offset lithographic station or a flexographic printing station and illustrates how the station may be converted from an offset lithographic station to a flexographic station; and

FIG. 3 illustrates the continuous in-line process of the present invention comprising a plurality of printing stations, each of which can be converted from an offset lithographic printing station to a flexographic printing station as well as a final coating station.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

FIG. 1 is a schematic representation of a well-known offset lithography printing station 10 having a plate cylinder 12, a blanket cylinder 14, and an impression cylinder 16. The printing medium or substrate, such as paper 20 either in sheet form or web, is fed over the impression cylinder 16 in printing contact with the blanket cylinder 14 to receive the image and then passes over the paper transfer cylinder 18 with the image printed thereon. An inking system 26, well known in the art, transfers the ink from the ink supply to the plate cylinder 12. This is a typical offset lithography printing station.

As disclosed in U.S. Pat. No. 4,796,556, offset lithographic printing machines generally have a plurality of in-line liquid application stations at least one of which is an ink image printing station for printing lithographic ink images on to suitable receptive copy sheets. The final

downstream liquid application station is a coating application station for printing a protective and/or aesthetic coating over selected portions of or over the entire ink-image printed surface of the copy sheets and can also be used to print metallic coatings or slurry. As stated in U.S. Pat. No. 4,796,556, two liquid application stations are shown, the latter including a coating apparatus and the first station being a conventional offset image printing station. The coating application printing station is one that can be modified to convert it either permanently or intermittently to a coating station from an offset lithographic station.

Such a station is illustrated in FIG. 2 herein. The station 30 comprises a housing 32 which includes therein a plate cylinder 34 that is fed with an ink system of rollers 36 that take ink from an ink supply 38 and transfer it to the plate cylinder 34. A blanket cylinder 40 is in ink transfer relationship with the plate cylinder 34 and the impression cylinder 42 where the image is transferred to a substrate passing between blanket cylinder 40 and impression cylinder 42 as blanket cylinder 40 rotates in the direction of arrow 52. This is a conventional offset lithographic printing station. When it is desired to convert that station into a coater station, the coater apparatus 43 has a coater head 44 including a supply of liquid coating and an anilox roller 46 that can be moved such that it can be in contact with either the blanket cylinder 40 for direct printing or the plate cylinder 34 for offset printing. In this case, the ink rollers 36 for the lithographic system are removed from engagement with the plate cylinder 34 in a well-known manner. The coater unit 43 includes a motor device 45, an arm 47, and a pivotal connection 48 that connects the coater head 44 with the remainder of the assembly.

As stated previously, the offset lithographic machine of FIG. 2 is converted as shown therein to a coater that is used only in the last stage of an in-line printing process. It has not been able to be used in stages other than the last printing station because the ink that is placed on the blanket cylinder by means of an anilox roller is still wet when it arrives at the subsequent stations, thus causing smearing of the printed material and causing a general impossibility of printing other information thereon. However, applicant has modified the station shown in FIG. 2 by the addition of a high-velocity air dryer 50 that is associated with the impression cylinder 42 directly after the ink is transferred from the blanket cylinder to the substrate on the impression cylinder. Thus by using flexographic inks, or aqueous coatings which are naturally quick-drying inks, and the high-velocity air dryer 50 located at the point where the ink is applied to the substrate on the impression cylinder, the ink is sufficiently dried when it passes to the next station that further printing can take place on the printed substrate.

Thus, as shown in FIG. 3, a conventional in-line offset lithographic printing machine 52 is shown having an apparatus to feed paper into the said machine, referred to as a feeder 54, printing stations 56, 58, 60, 62, and 64 and a coating station 66. A delivery station 68 receives the printed material or substrates. Thus there are a plurality of successive printing stations 56, 58, 60, 62, and 64 for printing color images on the substrate in a continuous in-line process. Any one of the printing stations 56-64 can be modified as generally shown therein and as illustrated in FIG. 2 to print a first color image using the flexographic process. The succeeding printing stations can then print a second color image over the first color image using the lithographic process in the continuous in-line process. As illustrated in FIG. 2, the flexographic process printing station includes the blanket cylinder 40 and the impression cylinder 42. A

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flexographic plate 41 on the blanket cylinder 40 has an image thereon for receiving the first color from the anilox roller 46 and transferring that first color image to the impression cylinder 42 for printing on the substrate. The high-velocity air dryer 50 thus dries the flexographic ink on the substrate and passes the substrate to the subsequent printing station. Thus in FIG. 3, station 56 may be modified as generally shown therein and as illustrated in FIG. 2 and a flexographic ink can be printed thereon at station 56, dried by the high-velocity air dryer 50, and coupled to subsequent in-line stations 58-64 for further printing a second or more color images over the first color image using the offset lithographic process in a continuous in-line process. The flexographic printing station shown in FIG. 2 may print a liquid vehicle image on the substrate with a slurry containing an encapsulated essence. At least one of the successive printing stations 58-64 an overcoating may be applied over the liquid vehicle image on the printed substrate using the flexographic process in the continuous in-line process. The overcoating may be an aqueous overcoating, or an ultraviolet overcoating. In addition, the substrate may be a sheet or a web 20 as illustrated in FIG. 1 or it may be single sheet fed in the continuous in-line process from the stack sheets shown at 54 in FIG. 3.

Further, the modified flexographic printing station 58 shown in FIG. 2, as stated previously, may be any one of the stations 56-64 in FIG. 3, and as illustrated by stations 56 and 58, and may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating. Again, after it is dried by the high-velocity air dryer 50, it may be passed to one of the successive printing stations for printing a color image over the aqueous-based vehicle image using the offset lithographic process in the continuous in-line process. The suspended material may include uniform-sized metal particles to form the metallic coating or it may include nonuniform or multiple-sized metal particles to form the metallic coating.

The present invention is especially useful when a liquid opaque coating must be printed such as a white color ink. In that case, it may be desirable to have both stations 56 and 58 modified as shown in FIG. 3 and as illustrated in detail in FIG. 2. In such case, the anilox roller 46 at each station delivers the white ink in the same pattern to the flexographic plate 41 on the blanket cylinder 40 for transfer to the substrate on the impression cylinder 42. As the substrate passes the high-velocity drying station 50, the ink is dried and the second station may again print the same white pattern on the substrate to increase the quality of the white ink appearance after it is applied to the substrate.

Thus, the station or stations that are converted to flexographic printing stations may have an ink-providing means 46 at the printing station for applying a flexographic ink to the blanket cylinder to form the image. A substrate receives the flexographic ink image transfer from the blanket cylinder and at least one subsequent printing station in the in-line process receives the image-printed substrate and prints an additional coated ink image on the substrate on top of the flexographic ink image using offset lithography. The additional colored ink images that can be printed on top of the flexographic ink images can be conventional lithographic inks or waterless inks.

Further, the colored ink images may be printed with halftone screening processes. The flexographic ink image and the colored ink images may also be printed in solids and/or halftone printing plates in sequence and in registry in successive printing stations to produce a multicolored image on the substrate. Further, the printing apparatus may include a sheetfed press or a web press.

In the present invention, at least one of the flexographic printing stations prints an image with liquid vehicle slurry containing an encapsulated essence. In another embodiment, at least one of the printing stations prints an image with a water-based liquid vehicle containing suspended particles that are either uniform or nonuniform in size. The suspended particles may be metallic particles up to substantially 16 microns in diameter.

The present invention may also use the metallic color printing process as disclosed in commonly assigned U.S. Pat. No. 5,370,976 incorporated herein by reference in its entirety.

In one aspect, the novelty of the present invention is to create a flexographic printing station that can be used at one of a plurality of printing stations in a continuous in-line process and in which, at a subsequent printing station, a lithographic process may be used to print over the liquid vehicle printed by the flexographic station.

Thus, there has been disclosed an apparatus for a combined lithographic/flexographic printing process that includes a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and wherein one of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using the lithographic process in the continuous in-line process.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but, on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

We claim:

1. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;

at least one of said successive printing stations being a lithographic printing station; and

an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.

3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.

4. Apparatus as in claim 1 wherein:

said substrate is a paper sheet; and
said apparatus includes a sheet feeder.

5. Apparatus as in claim 1 wherein:

said substrate is a web; and
said apparatus includes a web feeder.

6. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

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one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating;
 a suspended metallic material being included in said aqueous-based vehicle image; and
 at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder:
 a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression cylinder for printing said flexographic plate image on said substrate; and
 an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:
 a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;
 one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and
 at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:
 said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;
 a flexographic plate on said plate cylinder;
 an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and
 said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:
 a substrate;
 a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;
 at least two successive ones of said printing stations being flexography stations and comprising:
 (1) a supply of liquid coating;
 (2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;
 (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and
 at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:
 a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;
 a blanket cylinder at at least a first one of said flexographic printing stations;
 flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;
 a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and
 at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:
 a plate cylinder at said at least first one of said flexographic stations;
 a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and
 said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:
 a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;
 at least one of said flexographic printing stations having:
 (1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;
 (2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images on top of said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

34. A method as in claim 29 further including the steps of printing a slurry on said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an overcoating over said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and

printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

[illegible]

United States Patent [19]
Bird

[11] Patent Number: 4,796,556
[45] Date of Patent: Jan. 10, 1989

[54] ADJUSTABLE COATING AND PRINTING
APPARATUS

[75] Inventor: John W. Bird, Westport, Conn.

[73] Assignee: Blrow, Inc., Westport, Conn.

[21] Appl. No.: 65,964

[22] Filed: Jan. 24, 1987

[51] Int. Cl.⁴ B05C 11/00

[52] U.S. Cl. 118/46; 118/262;
101/177

[58] Field of Search 118/46, 262, 249;
101/177

[56] References Cited

U.S. PATENT DOCUMENTS

4,270,483	6/1981	Butler et al.	118/46
4,308,796	1/1982	Satterwhite	118/46 X
4,397,237	8/1983	Makosch	118/262 X
4,421,027	12/1983	Fischer	101/177 X
4,569,306	2/1986	Ito et al.	118/46 X
4,615,293	11/1986	Jahn	118/46
4,685,414	8/1987	DuRico	118/46

OTHER PUBLICATIONS

Gregory J. Lindner, "Nonflammable Aqueous Overcoatings Serve to Speed Ink Drying, Add Gloss to Printed Sheet", Graphic Arts Monthly, Oct. 1977, pp. 66-69.

Primary Examiner—Shrive Beck

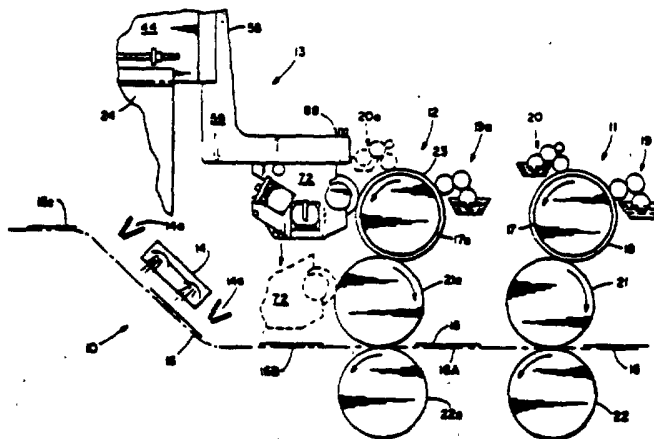
Assistant Examiner—Alain Bashore

Attorney, Agent or Firm—Peaman & Green

[57] ABSTRACT

An offset lithographic printing machine having a plurality of in-line liquid application stations, at least one of which is an ink image printing station for printing lithographic ink images onto suitable receptive copy sheets, and the final downstream liquid-application station being a coating application station for printing a protective, and/or aesthetic coating over selected portions of, or over the entire ink image-printed surface of the copy sheets. The coating application station comprises a plate cylinder adapted to print liquid coating composition onto predetermined selected areas of the ink image-printed copy sheets by offset-transfer to an intermediate blanket cylinder, a said blanket cylinder adapted to receive said liquid coating composition from the plate cylinder for retransfer onto predetermined selected image-printed areas of the image-printed copy sheets, and also adapted to receive a continuous liquid coating composition for retransfer as a continuous overall coating over the image printed areas of the image printed copy sheets. An adjustable coating-application carriage is supported for movement into coating association with either the plate cylinder blanket cylinder desired, for the application of a printed coating over either preselected limited areas or over the entire image-printed surface of the copy sheets.

23 Claims, 4 Drawing Sheets



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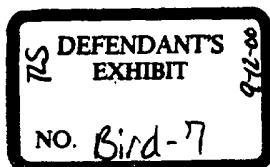
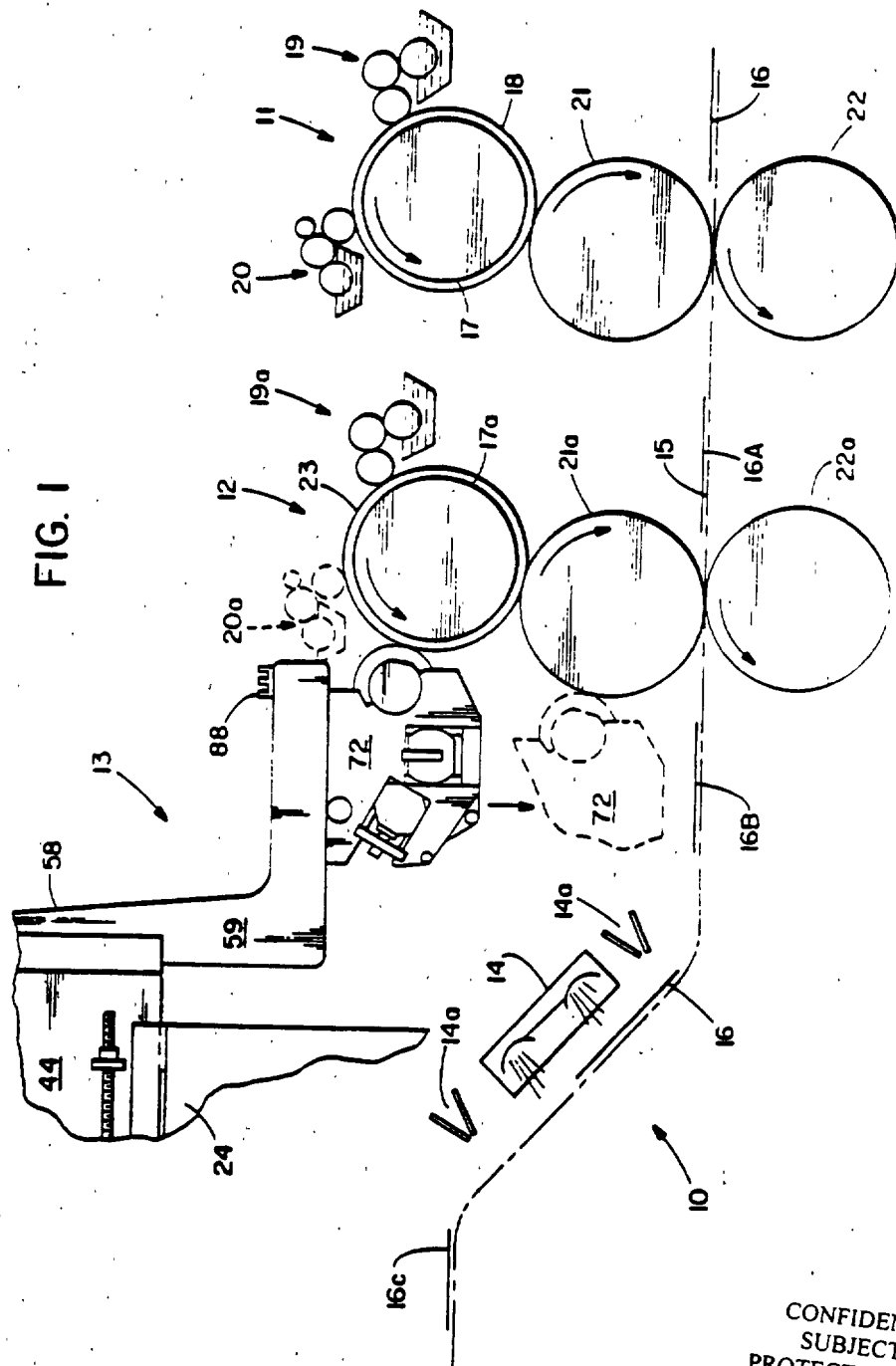


FIG. 1

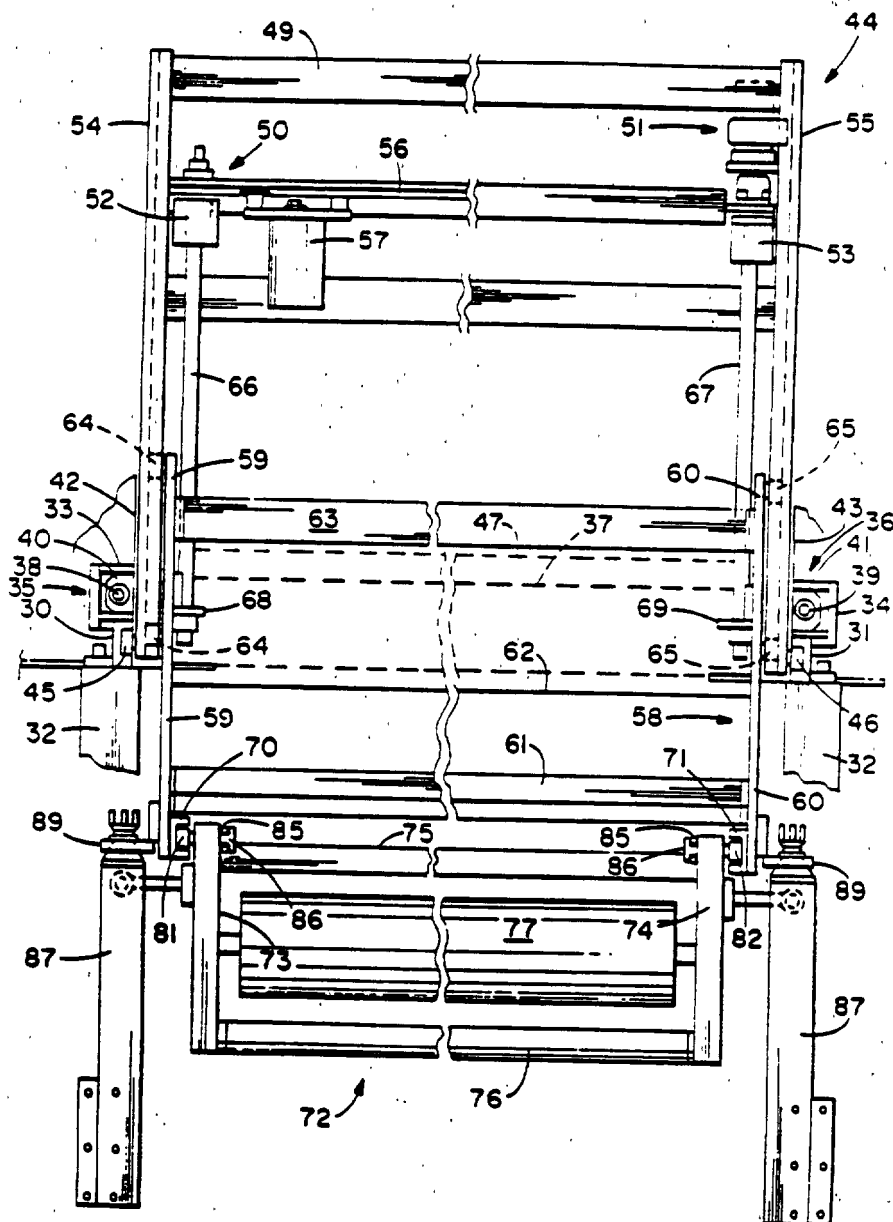


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FIG. 3



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ADJUSTABLE COATING AND PRINTING APPARATUS

BACKGROUND OF THE INVENTION

Conventional lithographic offset printing machines or presses comprise one or more image printing stations each having a printing roll (sometimes referred to as a plate cylinder) to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with aqueous' damping solution which adheres only to the background areas, and inked with oleoresinous ink which adheres only to the image areas of the plate as wet ink. The ink is offset transferred to the rubber surface of a contacting blanket roll (sometimes referred to as a blanket cylinder), and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as of paper, where the ink air-dries by oxidation and curing after passing through a drying station.

Since image-drying is gradual, it is conventional to spray the printed copies with starch or other "sulting" powder before the copies are stacked. This prevents sticking of the ink images to adjacent copies and also permits the circulation of air for the oxidation curing process.

In cases where cost is not a factor and/or where the aesthetic advantages of a protective supercoating are desired, it is known to provide the printing machine with a downstream coating station having a blanket roll associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web. This also avoids the necessity of powdering the printed images. Reference is made to U.S. Pat. No. 4,270,483 for its disclosure of such an apparatus. The coating unit of U.S. Pat. No. 4,270,483 is pivotally-associated with the blanket roll for movement between coating and noncoating or retracted positions.

It is known to apply pattern coatings of protective composition by means of blanket rolls by cutting into the rubber surface of the blanket to leave raised or relief surface islands which selectively receive the coating composition from the application roll for retransfer to selected areas of the copy sheets in the form of pattern coatings. This procedure has several disadvantages. The make-ready time required for the preparation of such relief blanket rolls is excessive and the procedure requires the tedious, precision efforts of an expert in order to approximate the required registration, whereas precise relief printing plates used on a printing roll can be produced photographically in a short period of time with a minimum of effort and expertise. Moreover, the attachment of a relief printing plate to a plate cylinder provides some degree of adjustability, axially as well as circumferentially, to provide better registration if necessary, whereas no adjustment of the relief portions is possible relative to the blanket roll or cylinder.

Protective coating compositions also improve the appearance of printed documents, particularly high quality, multi-color copies such as posters, record jackets, product brochures, etc., by providing glossy or matte finishes over the entire image-printed surface or over selected image-printed portions thereof such as photographs, product illustrations, etc. Selected area coating, spot coating or perfect registration over prede-

termined limited printed areas of the copies is advantageous from a cost standpoint since the coating compositions are relatively expensive and the volume required is reduced if the coating is only printed in registration where desired. Also, spot coating is frequently used as a means for highlighting certain portions of the printed copies such as company name or logo, product illustrations, photographs, etc.

While the cost of the protective coating compositions is an important factor, a more important cost factor is the necessity of removing the printed copies from an offset printing press and then running them a second time through a coating machine to print either a full protective coating or a spot protective coating, as desired. This problem is overcome by U.S. Pat. No. 4,270,483 with respect to the in-line printing of overall or continuous protective coatings but the problem of providing in-line spot printing of protective coatings with a minimum of make-ready time and a high degree of precision thickness remains.

SUMMARY OF THE INVENTION

An essential objective of the present invention is to provide a printing machine or press for the printing of imaged subject matter onto a receptive substrate, such as a copy web or a succession of copy sheets, said printing machine having a downstream coating station designed for the application of either continuous or spot coatings, as desired, over the image-printed copies in a continuous in-line process.

Another object of the present invention is to provide a coating apparatus designed to be mounted at the final downstream ink-application station of a conventional offset printing machine or press having a plurality of ink-application stations to convert said machine or press, intermittently if desired, to the in-line application of either continuous or spot coatings, as desired.

Yet another object of this invention is the provision of a single coating application apparatus mounted in association with the final downstream liquid application station of a printing press having a plurality of liquid application stations, each having a plate cylinder, a blanket cylinder and an impression cylinder, the coating application apparatus comprising a coating carriage which is adjustable between one coating position in which it coats the plate cylinder and another coating position in which it coats the blanket cylinder of the final downstream station to convert said station to a coating station for the application of either spot or continuous coatings to the surface of the image-printed copies.

The novel apparatus of the present invention comprises a coating application apparatus for an offset printing machine and a printing machine containing such an apparatus, the coating application apparatus having a movable carriage designed for operative association in one position with the plate cylinder and in another position with the blanket cylinder of the final liquid application station of the offset printing machine, the coating carriage being adjustably supported for automatic movement between said two different coating positions. One coating position brings the coating application roll of the carriage into coating association with the plate cylinder for the offset formation of predetermined printed spot coatings onto predetermined image-printed areas of the copy sheets. The other coating position brings the coating application roll of the car-

image into coating association with the blanket cylinder for the offset formation of a continuous coating onto the entire image-printed surface of the copy sheets. This enables the printing machine to image-print and coat-print the copy web or sheets in a continuous in-line operation, the apparatus being adjustable in simple fashion with a minimum make-ready time to adapt the coat-print step to the application of either spot coatings or continuous coatings depending upon the requirements of the printing operation. This increases the versatility of the offset printing machine, avoids the need for separate printing machines or for separate runs of the printed stock and enables the in-line precise printing of spot coatings in tight register and adjustable thickness, which was not possible with any prior-known offset printing machine.

The novel apparatus of the present invention enables the final downstream liquid application station of the printing machine to be used as either an ink-printing station or as a coating-application station and permits simple and rapid conversion between such utilities.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a vertical cross-sectional view through two downstream liquid application stations of an offset printing machine, illustrating a coating-application unit according to one embodiment of the present invention;

FIGS. 2A and 2B are segmented, detailed side views of coating application unit of FIG. 1 and

FIG. 3 is a horizontal front view of the coating application unit of FIG. 2.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings, FIG. 1 illustrates a downstream portion of an offset printing machine 10 comprising two liquid application stations 11 and 12, the latter including a coating apparatus 13 comprising a coating carriage 58, a radiation drying station 14 including air knives 14a, and a continuous copy sheet gripper system 15 which moves a succession of copy sheets 16 through the printing machine.

The first liquid application station 11 is a conventional offset image printing station comprising a plate cylinder 17, to which is clamped an imaged lithographic printing plate 18 carrying oleophilic image areas, such as words, photographs, etc. on an oleophilic background. The conventional clamping means permits some degree of lateral or axial adjustment and some degree of wrap-around or circumferential adjustment of the plate 18 relative to the plate cylinder 17. Plate cylinder 17 is associated with a dampening system 19 for wetting the entire background surface of plate 18 with aqueous dampening fluid, and with an inking system 20 for inking the imaged areas of the plate 18 with liquid oleoresinous ink.

The inked plate 18 is rotated against the ink receptive surface of a blanket cylinder 21, to which the wet ink images are offset or transferred, and the blanket cylinder 21 is rotated against a copy sheet 16, passed in the nip between the blanket cylinder 21 and an impression cylinder 22, to transfer the wet ink images to the copy sheet 16 and form an image-printed copy sheet 16A which is conveyed to the last liquid application station 12 which includes the coating application apparatus of the present apparatus.

The coating application station 12 can be similar to the inking station 11 with respect to the plate cylinder

17a supporting a printing plate dampening system 19a, blanket cylinder 21a and impression cylinder 22a since in a conventional offset printing machine having a plurality of liquid application stations, all of the stations are generally similar but use different printing plates to image different areas of the same copy sheet with different colored inks. The present apparatus modifies the final downstream inking station to convert it permanently or intermittently to a versatile coating station.

Plate 23 is an offset relief printing plate, preselected areas of which are raised above the background, generally referred to as "relief spots". Such spots are sized and positioned to correspond to areas of the image-printed copy sheets 16a which it is desired to selectively coat.

The essential novelty of the apparatus of FIG. 1 resides in the adjustable coating apparatus 13 which is mounted onto the frame 24 of the printing machine for extension of the coating carriage 58 into the liquid application station 12 for adjustable coating association with either the coating plate cylinder 17a or the coating blanket cylinder 21a, as desired.

The coating application apparatus 13, shown in greater detail in FIGS. 2 and 3, comprises a preferred embodiment of the present invention in that it includes a coating carriage 58 which is horizontally adjustably, in the machine direction, for movement between retracted or passive position and extended or active position, and also vertically adjustable for movement between the levels of the plate cylinder and the blanket cylinder. Moreover, the coating carriage 58 comprises a horizontally adjustable coating applicator unit 72 which is movable in the machine direction between different extended coating positions to accommodate plate and blanket cylinders which are not in vertical alignment, as shown by FIGS. 1 and 2B.

The coating application apparatus 13 of FIGS. 2A and 3 comprises a spaced pair of parallel, horizontal support rails 30 and 31 or legs designed to be bolted to frame portions 32 of the printing machine beyond station 12, rails 30 and 31 each being fastened to a gear housing 33, 34 of a hydraulic horizontal screw drive member 35, 36 connected to each other for simultaneous operation by a drive chain 37. The screw drive members 35 and 36 comprise reversible drive screws 38, 39 which threadably engage nuts 40, 41 which are fixed to the spaced vertical walls 42, 43 of the vertical lift housing 44.

Housing 44 is provided adjacent the bases of walls 42 and 43 with outward projecting cam follower or wheel pairs 45, 46 which are engaged within the horizontal tracks of the rails 30 and 31 to support the vertical lift housing 44 for horizontal movement between extended or active position, illustrated by FIGS. 1 and 2B, and retracted or passive position under the effects of hydraulic activation of the screw drive members 35 and 36. Walls 42 and 43 of housing 44 are fastened together and reinforced by cross-beams 47, 48 and 49.

Vertical or height adjustment of the coating application carriage 58 is made possible by a second pair of associated vertical screw drive members 50 and 51, shown most clearly in FIG. 3, each having a gear housing 52, 53 attached to the upper end of a vertical rail member, 54, 55 of the housing 44, and being connected to each other for simultaneous reversible operation by means of a drive chain 56 through a hydraulic motor 57.

Vertical lift housing 44 supports the vertically adjustable carriage 58 which comprises a spaced pair of L-

shaped side wall members 59 and 60 fastened together by cross-beams 61, 62 and 63. The vertical extensions of wall members 59 and 60 are provided with cam follower or wheel pairs 64, 65 which ride within the vertical tracks of rail members 54 and 55 on the inside of housing walls 42, 43 to raise and lower the vertical carriage section 58 under the activation of the screw drive members 50 and 51 since the drive screws 66 and 67 thereof threadably engage nuts 68 and 69, respectively, which are fastened to the lower ends of the vertical extensions of the L-shaped wall members 59 and 60.

The horizontal extensions of the L-shaped wall members 59 and 60 of the carriage 58 comprise lower horizontal track members 70 and 71 which support the coating application unit 72 of the carriage for horizontal adjustment therewithin.

Coating application unit 72 of carriage 58 comprises spaced, parallel side frames 73 and 74 fastened together by cross members 75 and 76 and supporting coating applicator roll 77, pick-up roll 78 positioned to pick up liquid coating composition from the coating pan 79, and adjustable metering roll 80 positioned to control the amount of coating composition passed by the pick-up roll 78 to the applicator roll 77. The outer surfaces of the side frames 73 and 74 are provided adjacent the top edge of each with a spaced pair of cam followers or wheels 81, 82 which ride within the horizontal tracks of the track members 70, 71 of the L-shaped wall members 59 and 60, to support the coating applicator unit 72 for adjustable horizontal movement within the carriage 58.

As shown by FIG. 2, movement of the coating unit 72 is controlled by a pair of hydraulic cylinders 83 each attached by a bracket 84 to an L-shaped wall member 59, 60 in horizontal alignment with the track members 70 and 71, and having their rod end 85 attached to the inside wall of side frames 73, 74 at posts 86. Activation of the hydraulic cylinders causes the coating unit 72 to move horizontally along track members 70 and 71 to position the leading edge of the applicator roll 77 for coating association with either the coating blanket cylinder 21a, as shown in FIG. 2B, or the coating plate cylinder 17a, as shown in FIG. 1. Preferably the printing machine frame is provided with spaced pairs of latch posts 87 and 88 or support brackets associated with the location of the blanket cylinder 21a and the plate cylinder 17a for engagement within latch brackets 89 attached to the outer surfaces of the horizontal extensions of the L-shaped wall members 59 and 60 in the area of the forward end of the track members 70 and 71. The engagement of the fixed latch post pair 87 within the latch brackets 89 secures the coating applicator carriage 72 in one position for coating the blanket cylinder 21a, as shown in FIGS. 2B and 3, while the engagement of the fixed latch post pair 88, shown by broken lines in FIG. 2B, within the same latch brackets 89 secures the coating applicator carriage 72 in another position, shown in FIG. 1, for coating the plate cylinder 17a. Such engagement requires a presetting of the sequence and duration of operation of the various hydraulic mechanisms. Engagement and disengagement of the latch brackets 89 on posts 87 and 88 requires vertical movement of the carriage 58 within the vertical lift housing 44 by predetermined directional and timed activation of the vertical screw drive members 50 and 51. Vertical alignment of the latch brackets 89 with the latch post pairs 87 and 88 must first be accomplished. This requires horizontal movement of the vertical lift housing 44 supporting the carriage 58 including the

coating applicator unit 72, and is accomplished by predetermined directional and timed activation of the horizontal screw drive members 35 and 36, for movement of the vertical lift housing 44 from retracted, non-coating position to extended, aligned position. Movement of the coating applicator unit 72 into coating position requires predetermined directional and timed activation of the horizontal hydraulic cylinders 83. Adjustable stop members may be incorporated to limit the various movements.

As will be clear to those skilled in the offset printing art, the novel printing and coating apparatus of the present invention enables the modification of a conventional offset printing machine having a plurality of liquid application stations to convert it to a printing and coating apparatus which is adjustable in simple manner for the alternative application of either full coatings or spot coatings. Moreover, such modification may be temporary, if desired, so that the final downstream liquid application station may be used for its intended purpose for the application of printed ink images or for its modified purpose for printing overall or spot coatings. The conversion from printing use to spot coating use merely requires retracting or disengaging the ink applicator roll of unit 20a to position shown by broken lines in FIG. 1, replacing the image printing plate on plate cylinder 17a with a relief coating plate 23, cleaning the surface of the blanket cylinder 21a and moving the coating application unit 13 horizontally from retracted position to extended position. If overall or complete coatings are desired it is only necessary to retract or disengage the plate cylinder 17a from coating association with the blanket cylinder 21a, without any alteration of the plate cylinder 17a or its printing plate 23 or ink application unit 20a.

The present coating applicator roll 77 has a substantially smaller diameter than that of the plate cylinder 17a or the blanket cylinder 21a, the diameters of which are equal. The speed of rotation of the applicator roll 77 is adjustable so that its surface speed may be the same as or slower or faster than the surface speed of cylinders 17a and 21a, or in reverse rotation thereto, to provide a brushing action relative thereto, if desired. Such brushing action provides a shearing of the coating composition in the nip therebetween, and a relatively heavy or thick direct deposit of coating composition on cylinders 17a and 21a in cases where the surface speed of roll 77 is faster than that of roll 17a or 21a. This is desirable particularly for the application of spot coatings, since the coating thickness is always split to about one-half as the spot coating is transferred from the relief plate 23 of plate cylinder 17a to the blanket cylinder 21a, and further, split to about one quarter when the spot coating is transferred from the blanket cylinder 21a to the printed copy sheets 16A. The effect of such inherent splitting is reduced by increasing the coating thickness on the relief areas of plate 23.

In cases where the coating composition is applied directly to the blanket cylinder 21a, for the application of continuous coatings to the printed copy sheets 16A, the plate cylinder 17a is retracted from contact with the blanket cylinder 21a so that the only coating split occurs during transfer from the blanket cylinder 21a to the imaged copy sheets 16A.

The offset printing machines to which the present invention applies are conventional machines and therefore the present disclosure does not include details regarding the support structure for the various rolls,

dampening units, inking units, sheet conveyor system, drying station, or copy sheet supplying and stacking stations. In most modern printing machines, the sheet conveyor system is not a gripper belt or chain but rather comprises automatic grippers on a series of contacting impression cylinders and transfer cylinders.

Also, the present coating compositions and systems for providing continuous supplies thereof to the coating applicator unit are conventional in the art.

The terms "vertically" and "horizontally" are used herein and in the appended claims to define general directions of movement, including angular vertical movement from one level to another and/or angular movement in the machine direction. For example, on printing machines where the coating plate cylinder is not in perfect vertical alignment above the blanket cylinder it may be preferable that the vertical rail or track of the vertical lift housing is inclined at an angle similar to the angle from vertical formed by a straight line contacting the surfaces of the plate cylinder and the blanket cylinder to be contacted by the coating applicator roll. Movement of the coating carriage along such an inclined vertical rail is both generally vertical and generally horizontal. Similarly the horizontal track members for the support legs of the apparatus and/or for the coating applicator unit may also be angular to provide some degree of vertical movement in cases where the design of the printing machine frame supporting the present apparatus makes it necessary or advantageous.

It is to be understood that the above described embodiments of the invention are illustrative only and that modifications throughout may occur to those skilled in the art. Accordingly, this invention is not to be regarded as limited to the embodiments disclosed herein, but is to be limited as defined by the appended claims.

What is claimed is:

1. An adjustable in-line coating application apparatus for attachment in association with a downstream liquid application station of an offset printing machine having a plurality of liquid application stations, for converting said downstream liquid application station to a coating application station for applying either continuous or spot coatings over the printed surface of a succession of copy sheets carrying ink images printed thereon at one or more upstream liquid application stations, said downstream liquid application station containing a blanket cylinder positioned to contact said plurality of printed copy sheets and an offset plate cylinder in vertical elevation above said blanket cylinder and supported for adjustment into and out of coating association therewith, said coating application apparatus having vertical guide means, a coating carriage attached to said support for substantially vertical movement along said guide means, said carriage comprising a coating application unit, including a container for a supply of liquid coating composition and an elongate coating applicator roll supported to receive a uniform supply of said composition on the surface thereof and to transfer a uniform supply of said composition to the surface of either a plate cylinder or a blanket cylinder in coating association therewith, and mechanical adjustment means for moving said carriage on said guide means relative to said support vertically between elevations corresponding to the locations of the blanket cylinder and the plate cylinder of an offset printing machine in order to move said coating applicator roll into coating

association with either said blanket cylinder or said plate cylinder, as desired.

2. An apparatus according to claim 1 in which the support for said coating application apparatus comprises a spaced pair of parallel elongate horizontal leg members designed to be fastened relative to the frame of an offset printing machine.

3. An apparatus according to claim 2 in which said support comprises a parallel pair of spaced vertical wall members which are fastened to each other to form a vertical guide means on a vertical lift housing for said coating carriage.

4. An apparatus according to claim 3 in which said horizontal leg members comprise horizontal tracks, and said vertical wall members are movably attached to said horizontal tracks to permit horizontal adjustment of the position of said vertical lift housing.

5. An apparatus according to claim 4 in which said coating carriage comprises a parallel pair of vertical side members which are fastened to each other to form said carriage, each said side member being supportively-engaged by a vertical guide means on a wall member of the vertical lift housing for vertical movement of said carriage relative to said housing.

6. An apparatus according to claim 5 in which each of the vertical side members of the carriage includes a lower, horizontal support extension to which the coating application unit is attached.

7. An apparatus according to claim 6 in which the horizontal support extensions comprise horizontal tracks to which the coating applicator unit is attached to permit horizontal adjustment of the coating applicator unit on the carriage relative to the vertical lift housing.

8. An apparatus according to claim 1 in which said coating carriage comprises releasable latching means for securing the unit relative to the frame of an offset printing machine when the carriage is positioned for movement of the applicator unit into coating association with either the blanket cylinder or the plate cylinder.

9. An apparatus according to claim 5 comprising automatic mechanical means for moving said carriage vertically relative to said vertical lift housing, said means comprising a vertical screw drive assembly one end of which is fastened to a vertical side wall of said housing and the other end of which is fastened to an adjacent vertical side member of said carriage.

10. An apparatus according to claim 4 in which said horizontal adjustment of the position of the vertical lift housing is provided by at least one horizontal screw drive assembly one end of which is fastened to a horizontal leg member and the other end of which is fastened to an adjacent wall member of the vertical lift housing.

11. An assembly according to claim 7 which further comprises means for causing horizontal movement of the coating applicator unit relative to the coating carriage, said means comprising at least one horizontal drive member one end of which is fastened to the applicator unit and the other end of which is fastened to the horizontal support extension of the carriage.

12. An offset printing machine having a frame supporting a plurality of in-line liquid application stations, each station comprising a blanket cylinder positioned to contact a succession of copy sheets to apply liquid thereto, and an offset plate cylinder in printing association with said blanket cylinder to apply liquid to prede-

terminated areas thereof for transfer to said blanket cylinder and retransfer to said copy sheets, the final downstream liquid application station comprising a liquid coating station for the application of continuous or spot coatings over areas of the copy sheets which are image-printed with ink in at least one upstream liquid application station which is an ink printing station, said liquid coating station having said plate cylinder and said blanket cylinder in vertical elevation relative to each other and comprising a coating application carriage including a coating applicator unit having a container for liquid coating composition and a coating applicator roll which receives a continuous supply of said liquid coating composition from said container, and vertical guide means for supporting said coating application carriage for mechanically-adjustable vertical movement along said guide means between a first coating elevation position in which said coating applicator roll is in coating association with said blanket cylinder and a second coating elevation position in which said coating applicator roll is in coating association with said plate cylinder, whereby said carriage can be moved mechanically to said first position to cause the application of a continuous liquid coating to the image printed surface of the copy sheets, and can be moved mechanically to said second position to cause the application of spot liquid coatings to predetermined limited areas of the image printed surface of the copy sheets.

13. A machine according to claim 12 in which said carriage is movable out of coating association with said blanket and/or plate cylinders and said final downstream liquid application station is adapted for alternative use as another ink printing station.

14. A machine according to claim 12 in which the means for supporting said coating application carriage includes a spaced pair of horizontal leg members designed to support the coating application carriage in association with final downstream liquid application station.

15. A machine according to claim 12 in which the means for supporting said coating application carriage includes a parallel pair of vertical wall members which are fastened to each other and to said guide means to form a vertical lift housing for said carriage.

16. A machine according to claim 15 in which said vertical wall members are movably attached to horizontal track members to permit horizontal adjustment of the position of said vertical lift housing relative to the blanket and plate cylinders.

17. A machine according to claim 16 in which said coating carriage comprises a parallel pair of vertical side members which are fastened to each other to form said carriage each said side member being supportingly engaged by a vertical guide means on a wall member of the vertical lift housing for vertical movement of said carriage relative to said housing and between at least said first and second coating positions.

18. A machine according to claim 17 in which each of said vertical side members of the carriage includes a lower horizontal support extension to which the coating applicator unit is attached.

19. A machine according to claim 18 in which said horizontal support extensions comprise horizontal tracks to which the coating applicator unit is attached to permit horizontal adjustment of the coating applicator unit relative to the coating carriage and the blanket and plate cylinders.

20. A machine according to claim 12 in which the frame of said machine includes first position latching means associated with the blanket cylinder, and second position latching means associated with the plate cylinder in said coating application station, and said coating carriage includes mating latching means which engage said position latching means when the carriage is moved into said first coating position and into said second coating position.

21. A machine according to claim 17 comprising automatic mechanical means for moving said carriage vertically relative to said vertical lift housing, said means comprising at least one horizontal screw drive assembly one end of which is fastened to a vertical wall of said housing and the other end of which is fastened to an adjacent vertical side member of said carriage.

22. A machine according to claim 16 which comprises automatic means for providing horizontal adjustment of the position of the vertical lift housing comprising at least one horizontal screw drive assembly one end of which is fastened to a horizontal track member and the other end of which is fastened to an adjacent wall member of the vertical lift housing.

23. A machine according to claim 19 which further comprises means for causing horizontal adjustment of the coating applicator unit relative to the coating carriage, said means comprising at least one horizontal drive member one end of which is fastened to the applicator unit and the other end of which is fastened to the horizontal support extension of the coating carriage.

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United States Patent [19]
Bird

[11] Patent Number: 4,841,903
[45] Date of Patent: Jun. 27, 1989

- [54] COATING AND PRINTING APPARATUS INCLUDING AN INTERSTATION DRYER
[75] Inventor: John W. Bird, Westport, Conn.
[73] Assignee: Birrow, Inc., Westport, Conn.
[21] Appl. No.: 65,914
[22] Filed: Jun. 24, 1987
[51] Int. Cl.⁴ B05C 11/00
[52] U.S. Cl. 118/46; 101/201; 101/217; 118/66; 118/258; 118/262; 118/264; 118/602; 427/258; 427/382; 427/411
[58] Field of Search 118/46, 66, 602, 258, 118/264, 262; 101/201, 217; 427/382, 258, 411

- [56] References Cited
U.S. PATENT DOCUMENTS
2,288,617 7/1942 Friden 118/46
3,121,642 2/1964 Bishop 118/46 X

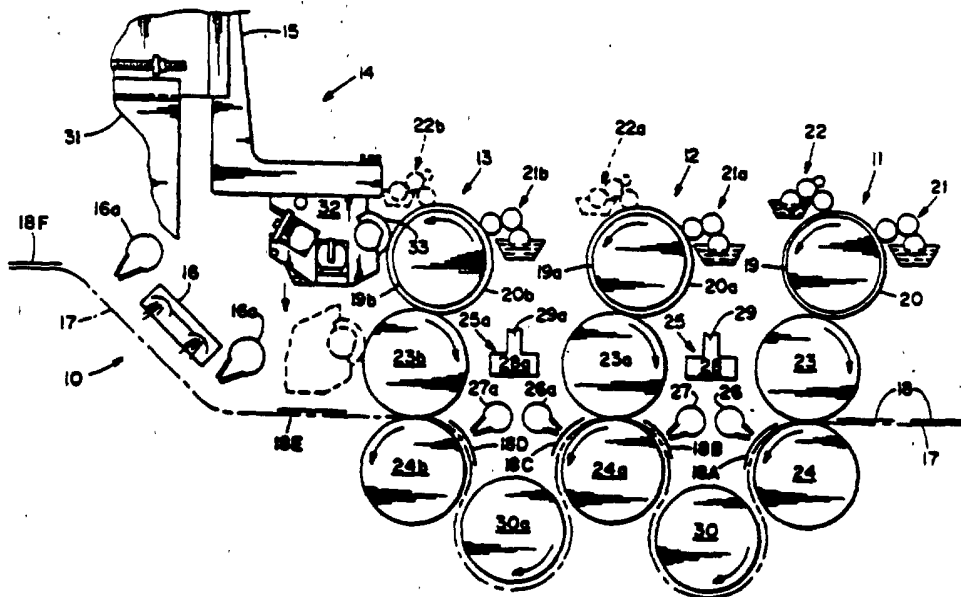
Primary Examiner—Bernard Pinalto

Attorney, Agent, or Firm—Perman & Green

[57] **ABSTRACT**

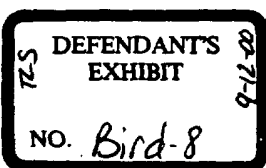
An offset lithographic printing method and machine having a plurality of in-line liquid application stations, at least one of which is an ink image-printing station for printing lithographic ink images on a suitable receptive copy sheet, and at least the final downstream liquid-application station is a coating application station for printing a protective, and/or aesthetic coating over selected portions of, or over the entire ink image-printed surface of the copy sheet. The present method and apparatus involves the placement of a drying station between liquid application stations to evaporate volatile solvent or vehicle from the ink images and/or to solidify the liquid coating applied at upstream stations before the application of a continuous or spot coating thereover at the next downstream coating station.

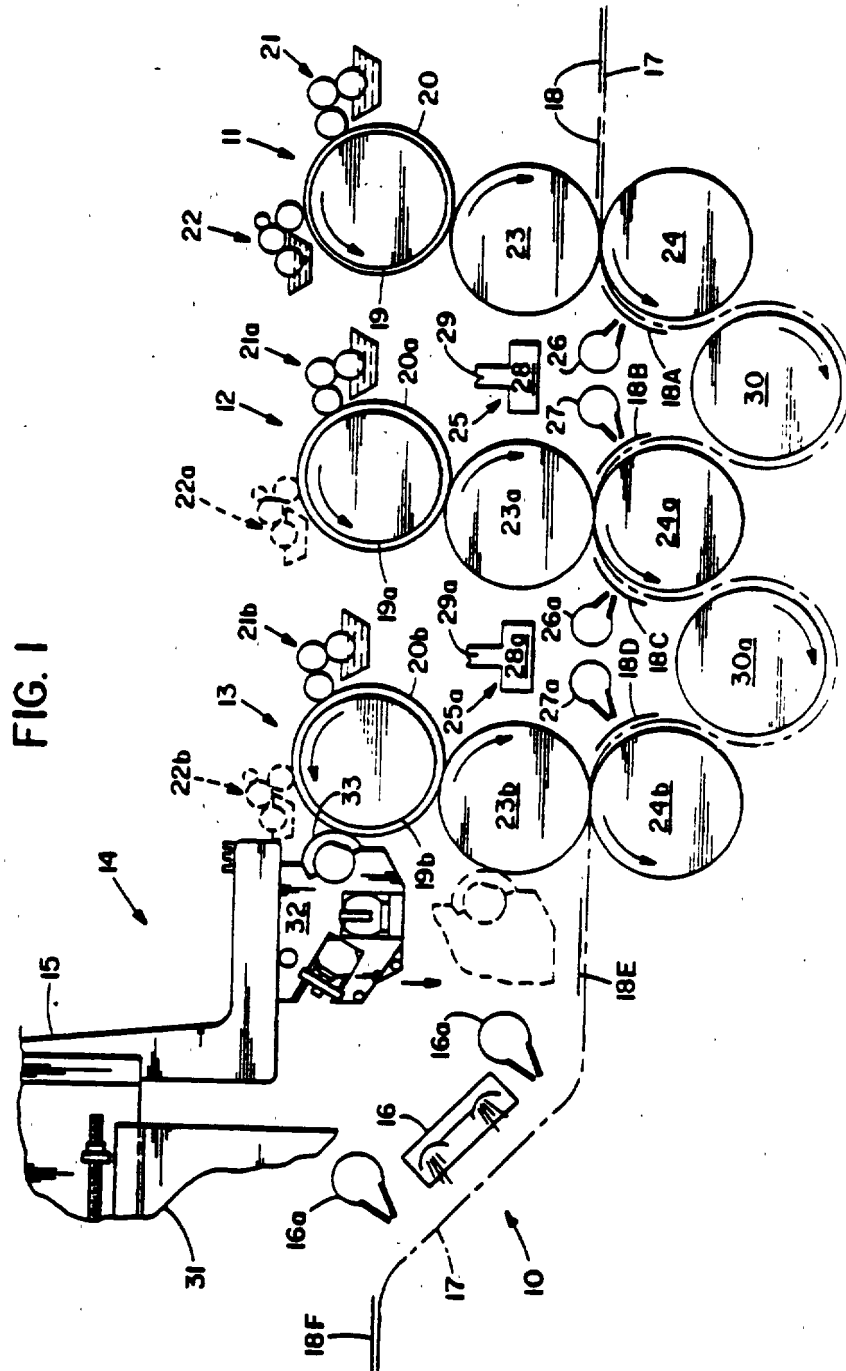
5 Claims, 1 Drawing Sheet



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COATING AND PRINTING APPARATUS INCLUDING AN INTERSTATION DRYER

BACKGROUND OF THE INVENTION

Conventional lithographic offset printing machines or presses comprise one or more image-printing stations each having a plate cylinder to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with aqueous damping solution, which adheres only to the background areas, and is then inked with oleoresinous ink composition which adheres only to the image areas of the plate as wet ink. The ink is offset-transferred to the rubber surface of a contacting blanket cylinder, and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as of paper, where the ink gradually hardens or cures by oxidation after passing through a final drying station located downstream of the final liquid application station where the volatile solvent is evaporated from the ink composition of the images.

Since image-curing is gradual, it is conventional to spray the printed copies with starch or other "stinting" powder before the copies are stacked. This prevents sticking of the uncured ink images to adjacent copies and also permits the circulation of air for the oxidation-curing process.

In cases where cost is not a factor and/or where the aesthetic advantages of a protective supercoating are desired, it is known to provide the printing machine with a downstream coating station having a blanket cylinder associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web.

This also avoids the necessity of powdering the printed images. Reference is made to U.S. Pat. No. 4,270,483 for its disclosure of such an apparatus. The coating unit of U.S. Pat. No. 4,270,483 is pivotally-associated with the blanket cylinder for movement between coating and non-coating or retracted positions. Reference is also made to my copending U.S. patent application, Serial No. 65,994, filed on even date herewith.

Protective coating compositions also improve the appearance of printed documents, particularly high quality, multi-color copies such as posters, product brochures, etc., by providing glossy or matte finishes over the entire image-printed surface or over selected image-printed portions thereof such as photographs, product illustrations, etc. Selected area coating, spot coating or perfect registration over predetermined limited printed areas of the copies is advantageous from a cost standpoint since the coating compositions are relatively expensive and the volume required is reduced if the coating is only printed in registration where desired. Also, spot coating is frequently used as a means for highlighting certain portions of the printed copies such as company name or logo, product illustrations, photographs, etc.

While the in-line application of a protective or aesthetic coating over the offset-printed images on a succession of copy sheets will prevent the dried but uncured printed images from sticking to adjacent copy sheets, the relatively wet condition of the printing ink composition and its solvent and/or diluent content, at

the time that the coating composition is applied thereover, and the presence of water from the dampening system in the copy sheets, produces a visible change in the appearance of the portions of the coating overlying the printed images during the evaporation of the solvent, diluent, water, etc., whereby, for example, a glossy-surfaced protective coating acquires a flat, matte or non-glossy surface, particularly in areas overlying the dried and cured printed images, and even the affected areas are not uniform in appearance depending upon the colors and/or surface areas of the underlying printed images. For example, printed colored photographs, half-tone illustrations, and the like, which are intended to be emphasized or heightened in appearance, such as by the application of glossy spot coatings thereover, undergo loss or degradation in the uniformity of their appearance and their color during the drying of the copy sheets.

Also, in cases where the protective or aesthetic coating is only spot-applied, such as over printed photographs, product illustrations, etc., the images printed on other surface areas of the copy sheets remain exposed and can stick to adjacent copy sheets unless sifting powder is applied, as discussed herein before.

The speed of operation of conventional offset printing and coating machines makes it impossible to apply successive continuous and spot coatings to a succession of copy sheets because the second coating will not adhere properly to the first coating while the latter is still wet, and/or the second coating will undergo degradation or loss of gloss during drying of the underlying coating.

These defects are of substantial importance in cases where the additional expense of one or more coatings is justified by the desired results, i.e., promotional posters, artwork, product containers, record jackets, videocassette boxes, etc. The defects, i.e., uneven surface appearance of the coating(s), detract from the appearance of the underlying images or photographs, particularly in the case of multi-colored images or photographs and are due to the presence of residual volatile solvents, diluents, water, etc., within the oleoresinous inks of the images or photographs, and the presence of water in the copy sheets, at the time that the first coating is applied thereover, and/or to the presence of volatile solvents, diluents or water within the first coating or undercoating at the time that the second coating is applied thereover. The application of a top coating over the printed images and/or over a first coating retards the volatile solvent, diluent or water against escape in the final drying station, but it eventually migrates into the top coating during the final drying and gradual curing of the ink images over a period of several hours time, resulting in a loss of perfection in the surface finish of the top coating.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a novel printing and coating method and apparatus for the in-line application of one or more protective or aesthetic coatings over imaged subject matter offset-printed onto each of a succession of copy sheets while avoiding the usual degradation or loss of uniformity of the surface appearance of areas of the coating(s) applied over the printed images and/or over underlying coated areas.

It is another objective of the present invention to enable the in-line application of a second protective or aesthetic coating, such as a glossy-finish spot coating, over a first protective coating, such as a continuous matte-finish coating, while avoiding the problems of poor adhesion and degradation or loss of glossy surface appearance of the second coating.

Essentially, the present invention is concerned with providing unblemished coated lithographic copies of the types desired in cases where the additional expense of supercoatings is justified by the desired results.

The present method and apparatus provides for the in-line drying of lithographic ink images, including photographic multi-color reproductions, and/or the drying of first continuous or spot coatings, printed or applied at one liquid application station before the application of a continuous or spot coating over said ink images or over said continuous spot coating at the next downstream liquid application station by interposing an in-line drying station between said one and next liquid application stations in order to more completely dry the ink images or first coating prior to the application of a final coating thereover, whereby the eventual drying of said final coating results in a substantially perfect surface finish.

The oleoresinous inks conventionally used to print lithographic copies generally comprise a mixture of oxidizable drying oils, such as safflower oil or linseed oil, a compatible resin binder material, such as a phenolic resin or a varnish, pigment such as carbon black, drying agents, and a volatile solvent such as mineral spirits, or other solvent for the resin and oil. The printed copy sheets also contain some water from the dampening system. Drying of the images occurs in two stages, namely evaporation of the volatile solvent in the first stage to form the relatively dry, tacky printed images, and oxidation-curing of the oleoresinous printed composition which requires several hours time and results in the final non-sticky, smear-resistant printed images. The present invention is concerned with first-stage drying or solvent/water evaporation prior to the application of a supercoating over the printed images.

The coating compositions conventionally used to apply protective or aesthetic coatings over printed lithographic images are aqueous solutions, dispersions or emulsions of water-dispersible or water-soluble film-forming binder materials, such as acrylic resins, hydrophilic colloids, vinyl alcohol, etc. Also, coating compositions free of volatile solvents or vehicles are commonly used, such as resin precursor compositions which are polymerizable or curable by exposure to ultraviolet or other radiation. Such compositions are based upon liquid acrylic monomers or pre-polymers, or photopolymers and photoinitiators, cross-linking agents and/or other conventional ingredients. Both solvent-applied and solvent-free coating compositions can produce microporous coatings which are permeable to oxygen to hasten the curing of the oleoresinous inks. While they are also permeable to the volatile ink solvents, diluents and water, the escape of these volatiles mars the appearance of the surface finish of the coatings, as discussed supra.

The second problem, pertinent to the embodiment of drying between coating stations, relates to the reduced receptivity of wet undercoatings for supercoatings applied thereover, producing uneven, discontinuous or spotty supercoatings having "holidays" or areas which have not accepted the supercoating.

The novel method and apparatus of the present invention overcomes these problems by drying the ink-imaged and/or undercoated copy sheets prior to the application of the undercoating over the ink-printed images and/or prior to the application of the supercoating over the undercoating, whereby substantially-perfect coatings having excellent surface properties, such as gloss, are produced.

DESCRIPTION OF THE DRAWING

FIG. 1 is a vertical cross-sectional view, through the final three liquid application stations of an offset printing machine, illustrating the interposition of in-line drying stations between the last two liquid application stations and a final downstream liquid application station which is a coating-application station.

DETAILED DESCRIPTION OF THE DRAWING

Referring to the drawing, FIG. 1 illustrates a downstream portion of an offset printing machine 10 comprising three liquid application stations 11, 12 and 13, a coating apparatus 14 according to aforementioned co-pending application Serial No. 65,954 filed June 24, 1987, comprising a coating carriage 15, a final radiation drying station 16 including air knives 16a, and a continuous copy sheet conveyor means 17 which moves a succession of copy sheets 18 through the printing machine.

The first liquid application station 11 is a conventional offset image printing station comprising a plate cylinder 19, to which is clamped an imaged lithographic printing plate 20 carrying oleophilic image areas, such as words, photographs, etc. on an oleophobic, hydrophilic background. The conventional clamping means permits some degree of lateral or axial adjustment and some degree of wrap-around or circumferential adjustment of the plate 20 relative to the plate cylinder 19. Plate cylinder 19 is associated with a dampening system 21 for wetting the entire hydrophilic background surface of plate 20 with aqueous dampening fluid, and with an inking system 22 for selectively inking the image areas of the plate 20 with liquid oleoresinous ink composition containing a volatile organic solvent.

The inked plate 20 is rotated against the ink-receptive surface of a blanket cylinder 23, to which the wet ink images are offset or transferred, and the blanket cylinder 23 is rotated against a copy sheet 18, passed in the nip between the blanket cylinder 23 and an impression cylinder 24, to transfer the wet ink images to the copy sheet 18 and form an image-printed copy sheet 18A. Some water from the dampening system is also transferred to the surface of the copy sheet 18A. Sheet 18A is conveyed, imaged face up, through a first drying interstation 25, comprising a pair of spaced, elongate air knives 26 and 27 and a vapor-extraction unit 28 containing an intake fan and a outlet conduit 29 which conveys the volatile vehicle vapors to a recovery unit, to the atmosphere or for some other safe disposal.

As illustrated, the printed copy sheets 18A, are conveyed by grippers past the first air knife 26, under transfer cylinder 30 and past the second air knife 27, to form dried printed copy sheets 18B which move into the next liquid application station 12.

The air knives 26 and 27 and the extraction unit 28 are conventional elements normally used as final drying elements on printing and coating machines of different types. Knives 26 and 27 are elongate tubular elements provided with an elongate narrow slot formed by op-

posed, converging walls. Heated air is circulated through the tubular elements under pressure and is expelled from the elongate slot as a concentrated narrow band of high speed hot air which is directed against the ink-printed copy sheets 18A to evaporate the volatile solvent and water therefrom to release solvent and water vapor which is withdrawn by the extraction unit 28. Substantial drying is produced by the first air knife 26, and the second air knife 27 preferably is included, as illustrated, to insure complete drying prior to the entry of the copy sheets 18B to the next liquid application station.

In the apparatus of FIG. 1, the second liquid application station 12 can be either another ink printing station, such as for printing ink of a second color, or it can be a first coating station. Thus the various elements of station 12 are numbered similarly to those of station 11 but including the suffix a.

Where station 12 is another ink printing station, the first drying interstation 25, upstream therefrom, functions only as a supplemental drying station and can be excluded or disconnected.

Where station 12 is a first coating application station, the first drying interstation 25 is a crucial component of the present invention. In such case, the inking system 22a of station 12 is withdrawn, as shown by means of broken lines, and the dampening system 21a is converted to a dampener coater system by providing a continuous supply of the desired coating composition to the supply pan thereof, i.e., an aqueous dispersion of a film-forming binder material containing in the case of matte-finish coatings, a diffusion filler such as silica or the like.

Generally, where the station 12 is a first coating station, the top roll 19a will be a plate cylinder having a full plate 20a for the application of continuous coatings to the intermediate blanket cylinder 23a or transfer cylinder and then to the dried ink-printed copy sheets 18B to form continuous coated printed copy sheets 18c. However, if desired, plate cylinder 19a may have a spot-receptive plate or relief plate 20a for the transfer of spot coatings to the intermediate blanket cylinder 23a and then to predetermined areas of the printed copy sheets 18B to form spot-coated printed copy sheets 18C.

Most commonly, the first coating will be a complete or continuous coating of a composition providing a matte non-glossy finish or a utility (semi-gloss) finish, and the second coating will be a spot coating of a composition providing a glossy finish to highlight predetermined areas of the printed, coated copies.

The coated printed copy sheets 18C exiting the first coating station 12 are conveyed by grippers, coated side up, through the second drying interstation 25 which is similar to the first drying station 25 and comprises a similar pair of spaced elongate air knives 26a and 27a and a similar extraction unit 28a and exhaust outlet conduit 29a.

The line of forced hot air from the first knife 26a, across the width of the copy sheets, substantially dries the first coating by evaporating the water vehicle therefrom, after which the dried, coated copy sheets 19D are conveyed by transfer roll 30a to the second air knife 27a to insure complete drying of the first coating prior to the entry of the coated printed copy sheets 18D into the final coating station 13 which includes the coating-application apparatus of the copending application, in the illustrated embodiment, but which may be a conventional coating station.

In cases where the first and/or second coating composition is free of volatiles and solidifies by polymerization curing, the drying interstation 25a and/or downstream drying station 16 will contain a suitable radiation source such as ultraviolet lamps.

The coating application station 13 also can be similar to the inking station 11 and first coating station 12 with respect to the plate cylinder 19b supporting a printing plate dampening system 21b, inking system 22b, blanket cylinder 23b and impression cylinder 24b since, in a conventional offset printing machine having a plurality of liquid application stations, all of the stations are generally similar but use different printing plates to image different areas of the same copy sheet with different colored inks. The present apparatus, requiring at least one coating-application station, and modifies at least the final downstream inking station to convert it permanently or intermittently to a coating-application station as shown by FIG. 1 or, alternatively, as illustrated by U.S. Pat. No. 4,270,483 discussed hereinbefore.

Plate 20b is an offset relief printing plate, preselected areas of which are raised above the background, generally referred to as "relief spots". Such spots are sized and positioned to correspond to areas of the image-printed copy sheets 18D which it is desired to selectively coat.

The adjustable coating apparatus 14 is mounted onto the frame 31 of the printing machine for extension of the coating carriage 15 into the liquid application station 13 for adjustable coating association with either the coating plate cylinder 19b or the coating blanket cylinder 23b, as desired.

The preferred coating application apparatus 14 includes a coating carriage 15 which is horizontally adjustable, in the machine direction, for movement between retracted or passive position and extended or active position, and also vertically adjustable for movement between the levels of the plate cylinder and the blanket cylinder as shown by means of broken lines. Moreover, the coating carriage 15 comprises a horizontally-adjustable coating applicator unit 32 which is movable in the machine direction between different extended coating positions to move the coating applicator roll 33 into coating association with printing and blanket cylinders which are not in vertical alignment, as disclosed in detail in my aforementioned copending application.

Thus, the coating carriage 15 and the applicator unit 32 are adjusted in the final coating station 13 to associate applicator roll 33 with either the spot relief plate 20b on printing roll 19a for the printing of spot coatings, or with the blanket roll 23a for the application of continuous coatings onto the dried, coated, printed copy sheets 18D, to form double-coated printed copies 18E. Copies 18E are transported by grippers past a final downstream radiant dryer 16 and air knives 16a, to evaporate the water vehicle from the second coating and form final copies 18F which are stacked to permit final curing of the oleoresinous printing ink.

The essential novelty of the present invention resides in the interposition of a drying station, such as 25 and 25a, between an ink printing station and a coating station, and preferably also between coating stations on machines having a plurality of coating stations, in order to substantially completely evaporate the volatile solvent or vehicle from the printed ink images, and evaporate any residual dampening water from the printed copy sheets, before the application of a spot or continuous coating thereover, and preferably to substantially

completely solidify and dry the first coating such as by irradiating to polymerize or by evaporating the volatile solvent, vehicle and/or water from the coated, printed copy sheets before the in-line application of a second spot or continuous coating over the first-applied coating, as illustrated.

In operation, a succession of copy sheets 18 is automatically gripped by the conveyor means 17 and transported through one or more ink printing stations 11 into printing contact with one or more ink blanket rolls 23 to print images, such as of different colors, on predetermined areas of each copy sheet, using conventional oleoresinous inks containing volatile organic solvent(s). At each ink-printing station 11, an offset printing plate 20 is fastened to a plate cylinder 19, moistened with water/chemical dampening fluid by means of dampening unit 21 and inked by means of inking unit 22. The ink is selectively received by the image areas of the plate 20, where some water dampening solution is picked up by the ink, transferred to the surface of the blanket cylinder 23 and re-transferred to the upper surface of a copy sheet 18 passed in the nip of cylinder 23 and impression cylinder 24. At this point, the ink images on each imaged copy sheet 18A still contain the volatile organic solvent and some water dampening solution which migrates into the copy paper.

Rather than moving the inked copy sheets 18A directly from a printing station 11 to a coating station 12, as is conventional in the art, the present method and apparatus provides for intermediate or interstation drying of the inked copies to evaporate the volatile organic solvent and water dampening solution from the ink images and copy paper to form solvent-free copies 18B prior to the application of a protective and/or aesthetic coating thereover.

In the embodiment of FIG. 1 the ink-printed copies 18A are moved through an interstation drying station 25 by directing the path of the copy sheets down under a transfer cylinder 30 and up over the coating impression cylinder 24a of the coating station 12. The drying of the copy sheets is accomplished by one or more high velocity hot air knife drying elements, such as 26 and 27 shown in FIG. 1, which heat the ink image, sufficiently lowering the solvent vapor pressure while the high velocity air scrubs the vapor from the surface to evaporate substantially all of the volatile organic solvent and water and form substantially solvent-free copies 18B before the copies 18B pass in the coating nip at coating station 12.

The evaporated solvent and moisture is drawn into the solvent extraction unit 28 by an exhaust fan 31 and removed from the ambient atmosphere by conduit 29 for safety purposes.

On machines having a single coating application station, such as station 12 or station 13 of FIG. 1, the solvent-free copies 18B are moved through said coating station 12 or 13 to receive either a continuous or a spot coating to form coated, printed copy sheets 18C which are transported to the final downstream drying station 16, 16a. On machines having two coating stations 12 and 13 used for the application to two superposed coatings, either of which may be spot or continuous, matte or glossy, the dried, printed copy sheets 18B are moved through the first coating station 12 to form coated, printed copy sheets 18C which are moved through the second interstation drying station 25a to form dried coated copy sheets 18D. Sheets 18D are moved through

the second coating station 13 and on through the downstream drying station 16, 16a.

After curing for several hours, the coated, printed copies 18F are found to be free of the surface defects of copy sheets printed and coated in similar manner but in the absence of interstation drying.

While the present specification and drawing refer to a continuous copy sheet conveyor means 17 carrying automatic grippers, it will be clear to those skilled in the art that most printing and coating machines convey the copy sheets by means of automatic grippers present on each of a series of contacting cylinders, such as the impression cylinders 24, 24a and 24b and the interposed transfer cylinders 30 and 30a of FIG. 1.

It is to be understood that the above described embodiments of the invention are illustrative only and that modifications throughout may occur to those skilled in the art. Accordingly, this invention is not to be regarded as limited to the embodiments disclosed herein, but is to be limited as defined by the appended claims.

What is claimed is:

1. In a continuous in-line offset lithographic printing machine for printing and coating a continuous succession of receptive copy paper sheets, comprising a plurality of liquid application stations, each comprising a plate cylinder for supporting a lithographic printing plate and including means for supplying oleous printing composition to oleophilic image areas on the water-coated surface of a said printing plate supported thereon, a blanket cylinder for receiving said printing composition and water from said plate cylinder and for transferring said printing composition and water to a succession of individual receptive copy paper sheets, and an impression cylinder forming a nip with said blanket cylinder through which said individual receptive copy paper sheets are passed to receive printing composition and water from said blanket cylinder, at least one said liquid application station being an upstream ink printing station for the transfer of printing composition in the form of ink images containing a volatile vehicle onto said succession of copy sheets, and at least one said liquid application station being a downstream coating station for the application of a printing composition in the form of a continuous or spot coating of liquid composition over the ink-imaged surface of said copy sheets, means for feeding said succession of individual receptive copy paper sheets through the nips of said blanket and impression cylinders of said liquid application stations, and a final downstream drying station for drying or otherwise solidifying said coated copy paper sheets, the improvements which comprises an intermediate in-line drying station positioned after each of said liquid application stations, each said drying station comprising means for directing forced hot air against the ink printed copy paper sheets to effect the evaporation of water and the volatile vehicle from the ink images printed on said copy paper sheets prior to the entry of the ink-imaged copy paper sheets into the next liquid application station including into said coating station.

2. A printing machine according to claim 1 having two adjacent downstream coating stations, characterized by the presence of another intermediate in-line drying station positioned in-line therebetween to effect the solidification of the coating applied at the first coating station prior to the entry of the coated copy sheets into the second coating station.

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3. A printing machine according to claim 1 in which said coating station comprises a coating application assembly which is adjustably supported for coating association with either the plate cylinder, for the application of spot coatings, or the blanket cylinder, for the application of continuous coatings, to said copy sheets.

4. A printing machine according to claim 1 in which

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said intermediate drying station also comprises a vapor extraction means.

5. A printing machine according to claim 1 in which said means comprises an air knife.

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THE UNIVERSITY OF CHICAGO

United States Patent [19]
Bird

[11] **Patent Number:** 4,895,070
[45] **Date of Patent:** Jan. 23, 1990

[54] **LIQUID TRANSFER ASSEMBLY AND METHOD**

[75] **Inventor:** John W. Bird, Westport, Conn.
[73] **Assignee:** Brow, Incorporated, Westport, Conn.

[21] **Appl. No.:** 217,412

[22] **Filed:** Jul. 11, 1988

[51] **Int. Cl.:** B41L 23/00

[52] **U.S. Cl.:** 101/148; 101/216;
101/349; 101/367; 118/46

[58] **Field of Search:** 101/348, 349, 147, 148,
101/350, 152, 153, 174, 216, 367; 118/46

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,259,062 7/1966 Dahlgren 101/148
3,411,442 11/1968 Muhlisch 101/148
3,786,746 1/1974 Roberts 101/350
4,610,201 9/1986 Jeschke 101/DIG 28

FOREIGN PATENT DOCUMENTS

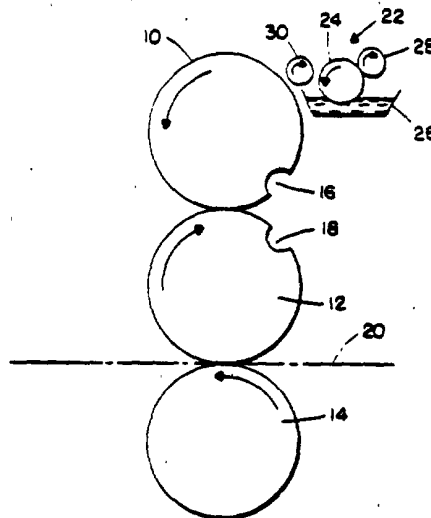
8501971 4/1986 PCT Int'l Appl. 101/147

Primary Examiner—Eugene H. Eickholt
Attorney, Agent, or Firm—Perman & Green

[57] **ABSTRACT**

A liquid transfer assembly is shown which transfers a predetermined thickness of liquid to a moving surface. the assembly employing a shearing action to achieve the predetermined thickness. The system includes a supply means for providing a source of the liquid; a first arcuately shaped surface which moves at a first speed and is adapted to contact the supply means so as to obtain a coating of liquid on its surface. A second surface is juxtaposed to the first surface but not in contact therewith, moves at a second speed different from the first speed; and the distance between the two surfaces is sufficiently close that the liquid on the first surface comes in contact with the second surface at their nearest point of proximity. Thus, by virtue of the different surface velocities, the liquid is subjected to a shearing action at the nearest point of proximity with a determined amount thereof being transferred to the second surface.

4 Claims, 1 Drawing Sheet



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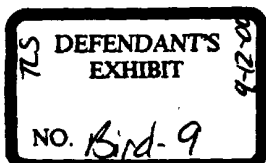


FIG. 1.

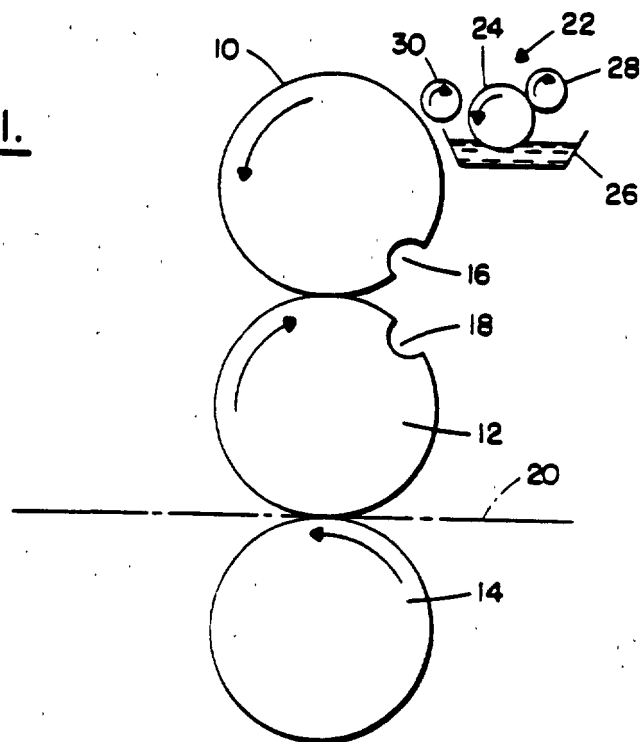
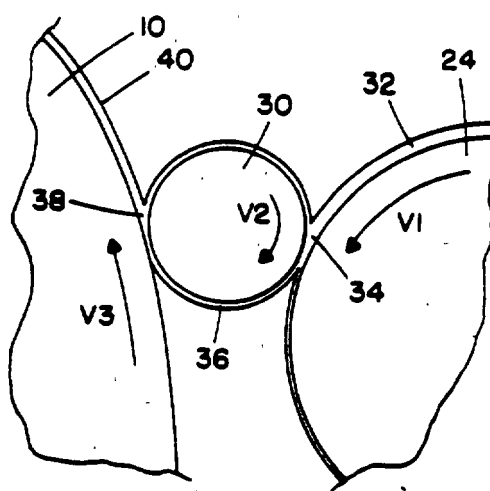


FIG. 2.



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LIQUID TRANSFER ASSEMBLY AND METHOD

FIELD OF THE INVENTION

This invention relates to offset lithographic printing and more particularly to a means and method for transferring liquid from a reservoir to an offset lithographic plate cylinder.

BACKGROUND OF THE INVENTION

In offset lithographic printing, each printing stage includes a plate cylinder, to which printing plates are tightly fastened around its circumference. The plate cylinder is equipped with inking and dampening mechanisms. The plate includes both image and non-image areas which are substantially coplanar, the image portions being hydrophobic and the non-image areas being hydrophilic. The dampening system applies an aqueous solution to the non-image areas and the inking system applies a greasy ink to the image areas. The plate cylinder transfers its image to an intermediate blanket cylinder which has a specially composed smooth rubber blanket surface. Printing stock in either sheet or webbed form is fed against the blanket cylinder by an impression cylinder and the ink (and dampening solution), is transferred to the printing stock thus completing the printing operation.

In applicator roll assemblies used with conventional lithographic printing cylinders, a pick-up roll is partially immersed in a trough containing a continuous supply of liquid. The liquid may be water, ink or a coating composition. The surface of the pick-up roll "picks up" a relatively thick coating of the liquid and rotates it into contact with a metering roll which controls or meters the thickness of the coating which is to remain on the surface of the pick-up roll. Excess liquid is returned to the trough. Further rotation of the pick-up roll brings it into pressure contact with an applicator roll whereby the applicator roll obtains a coating of the liquid from the pick-up roll. Finally, the applicator roll rotates into pressure contact with the plate cylinder (or in some instances the blanket cylinder) which is coated with the liquid by the pressure/rolling action of the applicator roll.

As the applicator roll moves about the outer periphery of the plate cylinder, it comes into contact with a plate clamp aperture where plates are secured to the outer periphery of the plate cylinder. Unless the applicator roll/plate cylinder contact pressure is very closely controlled, the clamp aperture will often cause the applicator roll to slightly move away from the periphery of the plate cylinder as the plate clamp aperture passes beneath it. This can create an interruption in the application of the liquid to the plate with resulting nonuniformities in the printed product.

Accordingly, it is an object of this invention to provide an improved liquid transfer assembly for offset lithographic printing apparatus.

It is another object of this invention to provide an improved liquid transfer assembly for offset lithographic printing apparatus wherein uniform layers of applied liquid result from the action of the transfer assembly.

SUMMARY OF THE INVENTION

A liquid transfer assembly is shown which transfers a predetermined thickness of liquid to a moving surface, the assembly employing a shearing action to achieve the

predetermined thickness. The system includes a supply means for providing a source of the liquid, a first arcuately shaped surface which moves at a first speed and is adapted to contact the supply means so as to obtain a coating of liquid on its surface. A second surface is juxtaposed to the first surface but not in contact therewith; moves at a second speed different from the first speed, and the distance between the two surfaces is sufficiently close that the liquid on the first surface comes in contact with the second surface at their nearest point of proximity. Thus, by virtue of the different surface velocities, the liquid is subjected to a shearing action at the point of proximity with a determined amount thereof being transferred to the second surface.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side, schematic view of an offset lithographic printing apparatus showing the relationship of the liquid transfer assembly thereto.

FIG. 2 is an expanded view of the contact surfaces of liquid transfer assembly.

DETAILED DESCRIPTION OF THE INVENTION

Reference is made to the following depending applications, all of which describe further details of an offset lithographic printing apparatus useful in conjunction with the invention hereof. The disclosures of each are incorporated herein expressly by reference: U.S. patent application, Ser. No. 65,914 filed June 24, 1965 and entitled "Coating and Printing Method and Apparatus Including An Interstation Dryer", and U.S. Pat. No. 4,796,556 entitled "Adjustable Coating and Print Apparatus", all to John W. Burd.

Referring now to FIG. 1, plate cylinder 10, blanket cylinder 12 and impression cylinder 14 are all of the conventional variety normally found in offset lithographic printing machines. Plate cylinder 10 is provided with a plate clamp aperture 16 wherein the print plate (not shown) is clamped to the external circumference of plate cylinder 10. In a similar manner, blanket cylinder 12 is provided with a blanket clamp aperture 18 where the blanket is secured. As is well known, a continuous conveyor belt, schematically shown at 20, feeds sheets to be imprinted between blanket cylinder 12 and impression cylinder 14.

A dampening system 22 includes a pick-up roll 24 which has a part of its circumference immersed in liquid bath 26 (e.g. water). A metering roll 28 is positioned to co-act with pick-up roll 24 to remove excess and otherwise assure a continuous film of liquid on pick-up roll 24. An applicator roll 30 is positioned so as to be close to, but not in contact with pick-up roll 24 as well as the outer surface of plate cylinder 10. In this preferred embodiment, pick-up roll 24, metering roll 28 and applicator roll 30 are each individually driven by separate motors so as to enable the speed of each to be individually adjusted. While not shown, additional coating stations for the purpose of applying inking solutions or coating solutions may also be emplaced about the periphery of plate cylinder 10 in the normal manner. It is here emphasized that the liquid transfer principle to be hereinafter discussed with respect to the dampening system, applies, in substance, to other coating applications.

Referring now to FIG. 2 in conjunction with FIG. 1, an expanded view of applicator roll 30 is shown in con-

junction with portions of plate cylinder 10 and pick-up roll 24. After the surface of pick-up roll 24 leaves the vicinity of metering roll 28, a layer of liquid 32 (e.g., water) resides on its surface. The peripheral velocity of pick-up roll 24 is adjusted so that it exhibits a characteristically constant velocity V1. The distance between the surfaces of applicator roll 30 and pick-up roll 24, at their nearest point of proximity 34, is adjusted so that the surface of applicator roll 30 comes into contact with liquid layer 32 as it passes therebetween. Velocity V2 of applicator roll 30 is adjusted to be greater than V1 so as to create, at proximity point 34, a shearing action on liquid 32. This shearing action causes a layer of liquid 36 to adhere to the outer periphery of applicator roll 30 and to be carried around its periphery until it comes into contact at proximity point 38 with the external periphery of plate cylinder 10. Here again, the velocity V3 of plate cylinder 10 is adjusted to be higher than V2 so that a further shearing action occurs on liquid layer 36 as it reaches point 38. The shearing action results in a layer of liquid 40 being applied to plate cylinder 10.

By adjusting the relative velocities of the rolls/cylinder surfaces, the thicknesses of liquid layers 36 and 38 can be readily adjusted (assuming identical wetting characteristics of the moving surfaces). More specifically, as the velocity V2 is increased with respect to V1, a thicker layer of liquid 36 adheres to the surface of applicator roll 30. In similar fashion, as the velocity V3 of plate cylinder 10 is increased with respect to the velocity V2 of applicator roll 30, the thickness of liquid layer 38 can be made to increase. Conversely, as peripheral velocities of the rolls/cylinders approach each other, the layer 40 of liquid adhering to plate cylinder 10 will decrease in thickness. However, if the peripheral velocities become equal or so close as to negate a shearing action, the liquid layer thicknesses will split and tend to become non-uniform.

The above stated, non-contacting liquid application system provides a number of advantages. One is that there is no contact between applicator roll 30 and plate cylinder 10 thereby preventing any contact between applicator roll 30 and plate clamp aperture 16. Another is that the amount of wear on the respective rolls/cylinder is greatly decreased. The system further provides for relatively easy adjustment of the amounts of liquid to be applied to plate cylinder 10. As aforesaid, it is important that the peripheral velocities of adjoining rolls/cylinder be somewhat different to sustain the shearing action which creates the desired thickness of liquid coating.

The motive power for each of the rolls and cylinders should be linearly adjustable in speed so as to provide the desired variability of circumferential velocities. Hydraulic motors are preferred; however electric motors of the variable speed variety are also acceptable.

The above described liquid transfer assembly is particularly adapted to application as a dampening system for a plate cylinder. This is due to the fact that the viscosity of water is relatively constant (notwithstanding temperature changes) and enables the dampening system, once adjusted, to operate properly for long periods of time. On the other hand, if the viscosity of the liquid is subject to large changes or is highly viscous, this invention is less well suited. It is applicable to inking systems where ink of relatively medium to low viscosities are employed and to coating applications where relatively constant viscosity coating materials are utilized.

This invention further reduces the maintenance necessary for offset printing apparatus and substantially negates the need for chuling of the dampening solution. As is well known, especially for web presses, roll pressures generate substantial heat and cause the dampening solution to increase in temperature—thereby requiring refrigeration. This invention decreases the resulting roll-generated heat and thus reduces refrigeration requirements.

It is to be understood that the above described embodiment of the invention is illustrative only and that modifications throughout may occur to those skilled in the art. Accordingly this invention is not to be regarded as limited to the embodiment disclosed herein but is to be limited as defined by the appended claims.

I claim:

1. In an assembly for transferring a predetermined thickness of liquid to a moving surface, said liquid exhibiting a relatively constant viscosity over the operating condition, the assembly comprising:

supply means for producing a source of said liquid;
a liquid bearing applicator roll movable at a first speed and adapted to contact said supply means and obtain a coating of said liquid on said surface;
a plate cylinder juxtaposed to said applicator roll and adapted to be moved at a second speed different from said first speed, said plate cylinder being maintained out of contact with said applicator roll but sufficiently close thereto that said liquid coating on said applicator roll comes in contact with said plate cylinder at the nearest point of proximity of said roll and cylinder, whereby said liquid coating is subjected to a shearing action at said nearest point of proximity with a determined amount thereof being transferred to said plate cylinder by shearing action.

2. The invention as recited in claim 1 wherein said liquid is water.

3. The invention as recited in claim 1 wherein said liquid is ink.

4. The invention as recited in claim 1 wherein said liquid is a coating material.

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TO THE EDITOR

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United States Patent [19]
Bird

[11] **Patent Number:** 4,939,992
[45] **Date of Patent:** Jul. 10, 1990

[34] **FLEXOGRAPHIC COATING AND/OR PRINTING METHOD AND APPARATUS INCLUDING INTERSTATION DRIERS**

[75] **Inventor:** John W. Bird, Westport, Conn.

[73] **Assignee:** Blrow, Inc., Westport, Conn.

[*] **Notice:** The portion of the term of this patent subsequent to Jun. 27, 2006 has been disclaimed.

[21] **Appl. No.:** 336,219

[22] **Filed:** Apr. 11, 1989

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 65,914, Jun. 24, 1987, Pat. No. 4,841,903.

[51] **Int. CL:** B41F 5/24

[52] **U.S. CL:** 101/183; 101/424.1; 101/488; 101/211; 118/46

[58] **Field of Search:** 101/115, 488, 424.1, 101/183, 138, 136, 177, 181; 118/46, 66, 58; 427/378, 379, 382; 34/1 SS

[56] **References Cited**

U.S. PATENT DOCUMENTS

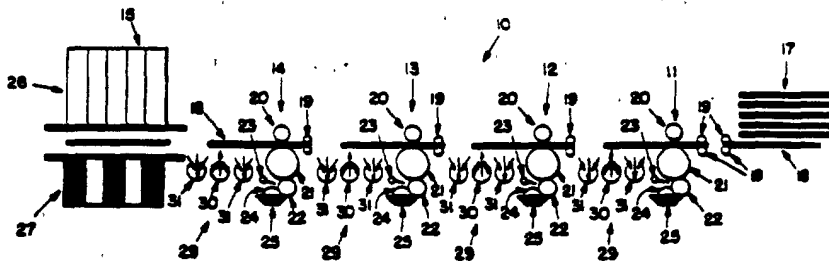
2,359,825 10/1944 Campbell 101/115
3,040,637 6/1962 Ichimose 101/115
3,121,642 2/1964 Bishop 427/199
3,221,646 12/1965 Hardy, Jr. et al. 101/115
4,841,903 6/1989 Bird 101/217 X

Primary Examiner—Clifford D. Crowder
Attorney, Agent, or Firm—Perman & Green

[57] **ABSTRACT**

A straight line flexographic printing method and machine having a plurality of in-line liquid application stations, at least one of which is an upstream ink image-printing stations for printing ink images on a succession of cardboard copy sheets, and at least one of which is a final downstream liquid-application station which may be a coating application station for printing a protective, and/or aesthetic coating over selected portions of, or over the entire ink image-printed surface of each cardboard copy sheet. The present method and apparatus involves the placement of a forced hot air drying station between each of the liquid application stations to evaporate volatile solvent/diluent from the ink images applied at each inking or coating station before the application of additional ink images or coatings thereover at the next downstream liquid application station.

11 Claims, 1 Drawing Sheet

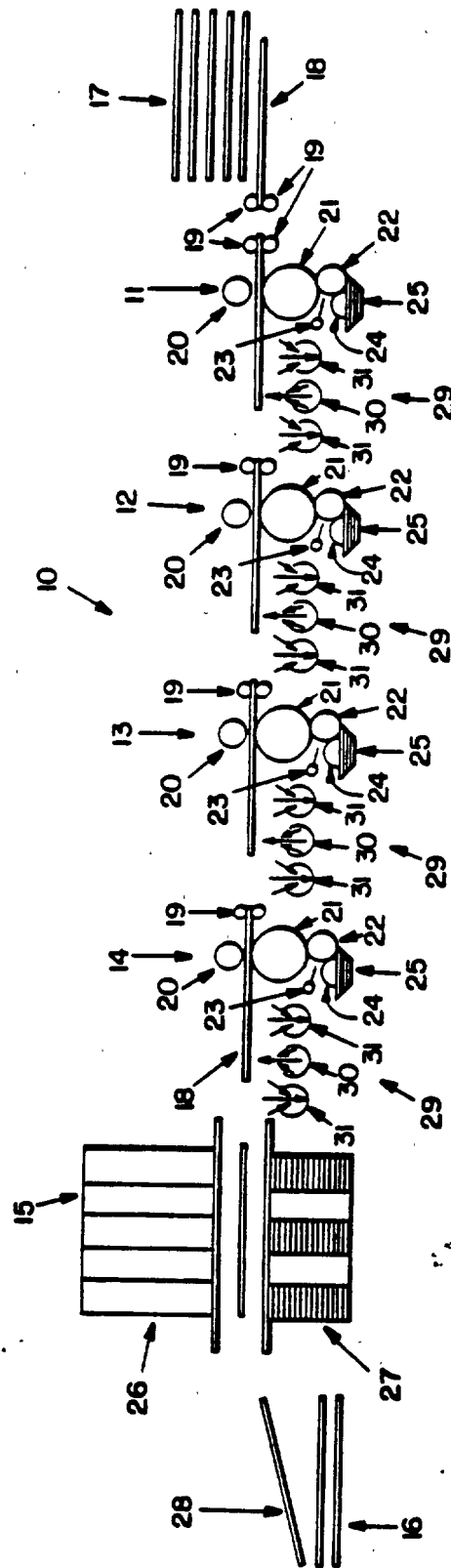


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72S DEFENDANT'S
EXHIBIT
NO. Bird-10

FIG. 1.



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FLEXOGRAPHIC COATING AND/OR PRINTING METHOD AND APPARATUS INCLUDING INTERSTATION DRIERS

BACKGROUND OF THE INVENTION

The present application is a continuation-in-part of application Ser. No. 65,914 filed June 24, 1987, now U.S. Pat. No. 4,841,903.

Conventional flexographic coating and/or printing machines or presses comprise one or more image-printing stations each having a plate cylinder to which is fastened a flexographic plate having raised image or printing areas. Aqueous or solvent ink is applied to the raised image areas, which ink is transferred directly to an absorbent copy sheet or web.

This differs from lithographic printing in which the flat, imaged surface of a plate is continuously wetted with aqueous damping solution, which adheres only to the background areas, and the plate is then inked with oleoresinous ink composition which adheres only to the image areas of the plate as wet ink. The ink is offset-transferred to the rubber surface of a contacting blanket cylinder, and retransferred to the receptive surface of a copy web or a succession of copy sheets, such as of paper, where the ink gradually hardens or cures by oxidation, in some cases after passing through a final drying station located downstream of the final liquid application station where the volatile solvent is evaporated from the ink composition of the images.

In multicolor printing processes and machines of both flexographic and lithographic types, the copy web or sheets pass through a plurality of ink-printing stations in which inks of different colors are printed over the same areas in partial or complete registration to produce multi-ink images or image portions having a variety of desired colors or color-blends. However such multi-ink images vary in sharpness, color-intensity and tone or hue depending upon the number of underlying ink portions.

Stiff, heavyweight cardboard sheets, such as corrugated cardboard, can only be printed and/or coated on a straight line flexographic printer and/or coater since such sheets cannot be caused to wrap around and over plate cylinders or impression cylinders, as is common with lithographic presses and with some known flexographic presses which are used for printing flexible sheets.

Flexographic straight-line printing machines are employed for the printing of relatively thick sheets of highly absorbent material, such as corrugated cardboard, which are moved in a straight line, in flat condition, through one or more ink-printing stations. At each such station the thick absorbent sheets pass in the nip between a flexographic plate cylinder and an impression or back-up cylinder, the raised images on the plate applying flexographic ink directly to the absorbent surface of each sheet, such as cardboard. The flexographic ink comprises resin, pigment and volatile diluents and/or solvent and dries by the absorption of the diluent/solvent into the absorbent surface. This results in some spreading of the printed images, lines, etc., with resultant loss of sharpness, detail and quality of print. This is particularly true where different colored inks are printed in partial or complete registration, which further causes variations in coloration or color tone between areas which are overprinted and areas which are not, e.g., the redness of a red line printed over a grey

underprint is visibly different from the redness of the same line extending onto unprinted areas of the sheet, due to variations in the ability of the sheet to quickly absorb the diluent/solvent. The same is true with respect to the lack of uniformity of surface appearance of a solvent-applied overcoating.

In cases where cost is not a factor and/or where the aesthetic advantages of a protective supercoating, generally referred to as a coating in the flexographic industry, are desired, it is known to provide the printing machine with a downstream coating station having a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets.

While the in-line application of a protective or aesthetic coating over the flexographic images on a succession of copy sheets will improve the appearance of the print and render it smear-resistant and weather-resistant, the relatively wet condition of the printing ink composition, particularly in overprinted areas, at the time that the coating composition is applied thereover, produces a visible change in the appearance of the portions of the coating overlying the printed images during the evaporation and/or absorption of the solvent, diluent, water, etc., whereby, for example, a glossy-surfaced protective coating acquires a non-uniform flat, matte, or non-glossy surface, particularly in areas overlying the multi-printed images, and even the affected areas are not uniform in appearance depending upon the colors and/or surface areas of the underlying printed images due to the solvent/diluent in the coating interacting with the still-wet color inks. For example, printed colored images, half-tone illustrations, and the like, which are intended to be emphasized or heightened in appearance, by the application of glossy coatings thereover, undergo loss or degradation in the uniformity of their appearance and their color during the drying of the coating.

These defects in color quality and coating appearance are of substantial importance in cases where the additional expense of one or more coatings is justified by the desired results, i.e., promotional displays, artwork, product containers, etc. The defects, i.e., uneven surface appearance of the coating(s) and the quality of the underlying color images, detract from the appearance of the coating and/or underlying images, particularly in the case of multi-colored images and are due to the presence of various amounts of residual volatile solvents, diluents, water, etc., within the flexographic inks of the first images at the time that the second flexographic images are applied thereover, and/or to the presence of volatile solvents, diluents or water within the second subsequent flexographic ink images at the time that the coating is applied thereover. The application of a top coating over the printed images retards the volatile solvent, diluent or water against escape in the final drying station, but the volatiles can eventually migrate from the cardboard into the top coating during the final drying of the printed cardboard, resulting in a loss of perfection in the surface finish of the top coating.

These problems have not been important in cases where the sheets being printed are cardboard shipping cartons or the like, where high quality is not considered important. However in some cases, such as with display cardboard and ultimate sale cardboard containers, such as shoe boxes, toy boxes, clothing closets, etc., where high quality, multi-color printing is important, it has

been necessary to print an outer paper sheet by means of higher quality printing processes and then adhere or laminate the printed sheet to the cardboard support. This is expensive and labor-intensive. The present invention makes this unnecessary for many flexographic applications.

It is known to provide one or more drying stations between inking stations on continuous web flexographic printing machines. However such machines convey the copy sheet through a tortuous path and thus are only useful for printing flexible webs and not sheet lengths or cardboard blanks.

It is an object of the present invention to provide a novel flexographic printing and/or coating method and apparatus for the in-line application of one or more inks and/or protective or aesthetic coatings over imaged subject matter flexographically printed onto each of a succession of heavyweight, absorbent copy sheets while avoiding the usual degradation of sharpness, detail, color uniformity or loss of uniformity of the surface appearance of areas of the ink(s) and/or coating applied over the previously ink-printed images.

It is another objective of the present invention to provide a flexographic printing method and apparatus for providing high quality flexographic printing directly on heavyweight sheets, such as corrugated cardboard, thereby avoiding the need for pre-printing paper, such as by offset lithographic means, and thereafter adhering it to a cardboard support.

Essentially, the present invention is concerned with providing high quality flexographic copies of the types desired, directly on heavyweight absorbent sheets particularly in cases where the additional expense of multiple colors and supercoatings is justified by the desired results.

SUMMARY OF THE INVENTION

The present flexographic method and apparatus provides for the inline forced hot air drying of flexographic ink images, including multicolor images and photographic reproductions, printed or applied at one liquid application station before the application of a second printing ink or a continuous or spot coating over said ink images at the next downstream liquid application station by interposing an in-line drying station between each of said liquid application stations in order to pre-dry the first colored ink images prior to the application of images of a second color or a final coating thereover, whereby the drying of each ink removes volatile solvents/diluents which can cause the ink images to spread or broaden, and/or blemish the next ink or coating applied thereover.

The evaporation of volatile solvents/diluents from flexographic ink images applied to stiff, absorbent sheets is unknown and unobvious since such images are intended to dry by absorption of the volatile solvents/diluents and oil of the ink into the absorbent paper sheet, such as the outer paper ply of a corrugated cardboard. However I have discovered that the interstation evaporation of such volatiles dries the ink images before they can spread, bleed or wick into the absorbent paper support, thus preserving their sharpness, detail and coloration. Moreover such evaporation dries the surfaces of the first printed images so that they are more receptive to second images or coatings applied thereover and more resistant to being diluted, spread and/or broadened by the volatiles present in the second applied images or coating. Moreover the pre-removal of the vol-

tile avoids the accumulation of volatiles, in different quantities, in different areas of the printed copy sheets or cardboard sheets, depending upon the number of overprints, the presence of which can continue to cause the images to spread or broaden and/or can result in color degradation and degradation in the uniformity of the appearance of an overcoating, if present.

The present invention is concerned with drying or solvent/diluent evaporation prior to the application of a second ink or a supercoating over the printed images.

The coating compositions conventionally used to apply protective or aesthetic coatings over printed images are aqueous solutions, dispersions or emulsions of water-dispersible or water-soluble film-forming binder materials, such as acrylic resins, hydrophilic colloids, vinyl alcohol, etc. Also, coating compositions free of volatile solvents or vehicles are commonly used, such as resin precursor compositions which are polymerizable or curable by exposure to ultraviolet or other radiation. Such compositions are based upon liquid acrylic monomers or pre-polymers, or photopolymers and photoinitiators, cross-linking agents and/or other conventional ingredients. Both solvent-applied and solvent-free coating compositions can produce microporous coatings which are permeable to volatiles. While they are permeable to volatile ink solvents, diluents and water, the escape of these volatiles mars the appearance of the surface finish of the coatings, as discussed supra.

Multicolor flexographic printed ink images commonly are formed by using inks containing pigments of different primary colors which, when combined in superposition, produce different secondary colors depending upon the identity and number of primary colors used. However, unless each ink image is dried sufficiently to evaporate the solvents and water present therein, before a second ink is printed in partial or full registration thereover, said solvents and water produce blemishes in the total image when they are eventually evaporated. Such blemishes include voids uneven tones, ragged edges, etc.

Another problem, pertinent to the embodiment of drying between printing stations, relates to the reduced receptivity of wet images for images and/or supercoatings applied thereover, producing uneven, discontinuous or spotty images or supercoatings having "holidays" or areas which have not accepted the images or supercoating.

The novel flexographic method and apparatus of the present invention overcomes these problems with stiff, heavyweight absorbent sheets by drying the ink-imaged copy sheets prior to the application of additional ink images and/or prior to the application of a coating over the ink-printed images, whereby substantially-perfect flexographic images and/or coatings having excellent uniformity, color tone and surface properties, such as gloss, are produced on stiff copy sheets, such as cardboard, printed and/or coated in a straight line flexographic apparatus.

THE DRAWING

FIG. 1 is a vertical cross-sectional view of a flexographic printing and punching machine, illustrating four liquid application stations and the interposition of inline drying stations between each of the liquid application stations and including a final downstream in-line drying station in advance of an optional die cutting, folding and/or gluing creasing station.

DETAILED DESCRIPTION

Referring to the drawing, FIG. 1 illustrates a flexographic printing machine 10 comprising four liquid application stations 11, 12, 13 and 14 the final downstream station 14 being a coating station, if desired, an optional die cutting, creasing, folding and/or gluing station 15 at which the printed cardboard copies are die cut into desired shapes, such as carton blanks, and creased for folding purposes, if desired, prior to stacking at 16.

As illustrated, the present apparatus includes a feeding station 17 for feeding a continuous supply of cardboard blanks or sheets 18 in a straight line between a plurality of feed rolls 19 into and through each of the liquid application stations 11 to 14 in which each sheet 18 is engaged between an upper impression cylinder 20 and a lower printing cylinder 21. The printed blanks 18 are finally fed to a cutting and creasing press station 15 in which they are die cut and creased, and moved to a stack 16.

Each of the flexographic printing stations 11 to 14 comprises a flexographic plate cylinder 21, the final downstream one of which, in station 14, can be one for printing an overall or spot coating over the portions of the sheet 18 printed with ink images in stations 11, 12 and 13. The liquid application systems in stations 11 to 14 each comprise the plate cylinder 21, a metering roll 22 with associated doctor blade 23, an application roll 24 and an ink (or coating) supply 25. The illustrated ink (or coating) supply 25 is a pan into which the roll 24 extends to receive a continuous supply of the ink or coating composition as it is rotated in the counter-clockwise direction. However most commercially available flexographic printing machines pump the ink or coating supply as a continuous supply onto the surface of the applicator roll 24. The doctor blade 23 is adjustable relative to the surface of the metering roll 22 in order to control the thickness of the ink or coating layer moved onto the plate surface on the plate cylinder 21 for transfer to the undersurface of each cardboard sheet 18.

The apparatus includes conventional registration means, including feed rolls 19, so that each sheet 18 and the plate on each printing cylinder 21 are in exact registration to precisely control the areas of each sheet 18 to be printed with different colored inks at stations 11 to 14 or to be printed with coating composition at station 14.

The multi-printed sheets 18 are moved into the optional station 15, which includes a movable cutter/crease die 26 and an anvil 27, in order to cut away and/or crease predetermined portions thereof to form printed blanks 28 which are stacked at 16.

The essential novelty of the present flexographic printing apparatus resides in the plurality of interstation driers 29, one or more of which are located after each of the printing stations 11 to 14 for purposes of rapidly drying the ink images applied to sheets 18 at each printing station 11 to 13 before the printed sheets enter the next printing station and to dry the final ink or coating after print station 14. This has been found to result in substantially sharper, clearer images being produced on the cardboard sheets as compared to conventional straight line flexographic printers which permit the images to dry by absorption of the volatile ink solvent/diluent into the cardboard surface. Moreover the present apparatus has been found to permit the overprinting of different colored inks in partial or complete registration without dilution or spreading or alteration of the

sharpness or color tone of the underlying images. The pre-drying of the underlying images sets their color and sharpness, preventing them from being spread and diluted by absorption by the cardboard sheet. Moreover the pre-drying of the images renders them more resistant to being redissolved and spread or diluted by the volatile solvent/diluent of the next-applied ink, and provides a pre-dried ink surface which is more receptive to being overprinted with the next-applied ink and is resistant to being drawn back off the cardboard surface by the pressure of the next ink printing cylinder 21.

Referring to FIG. 1, each interstation drier 29 comprises at least one elongate tubular forced hot air knife 30 which is closely-spaced from the printed undersurface of the sheets 18, and an associated pair of elongate tubular vapor suction means 31 for withdrawing the evaporated ink vehicle or solvent to a recovery unit or for safe release to the outside atmosphere.

In operation, the inked plate on the first flexographic cylinder 21 is rotated against the ink-receptive surface of each cardboard sheet 18, to which the wet flexographic ink images are transferred to form an image-printed copy sheet 18. Each sheet 18 is conveyed, imaged face down, through a first drying interstation 29, comprising at least one forced hot air knife 30 and a spaced pair of vapor-extraction units 31 which withdraw and convey the volatile vehicle vapors to a recovery unit, to the atmosphere or for other safe disposal.

As illustrated, each printed copy sheet 18 is conveyed past the first air knife 30 to form a dried printed copy sheet which is moved into the next liquid application station 12.

The air knife 30 and the extraction units 31 are conventional elements normally used as final drying elements on printing and coating machines of different types, and are sufficiently small in diameter, i.e., about two inches, that they can be accommodated within the small areas present between printing stations on conventional straight-line flexographic printing machines. Knives 30 are elongate tubular elements provided with an elongate narrow slot formed by opposed, converging walls. Heated air is circulated through the tubular elements under pressure and is expelled from the elongate slot as a concentrated narrow band of high speed hot air which is directed against the undersurface of the ink-printed copy sheets 18 to evaporate the volatile solvent or vehicle therefrom to release vapor which is withdrawn through elongate slots in the extraction units 31. Substantial drying is produced by the each air knife 30, but a spaced second air knife may be included at each drying station 29 to insure complete drying prior to the entry of the copy sheets 18 to the next liquid application station.

In the apparatus of FIG. 1, the second ink application station 12 is another ink printing station, such as for printing ink of a second color. Thus the various elements of station 12 are numbered similarly to those of station 11.

The printed copy sheets 18 exiting the second printing station 12 are moved by feed rollers 19, printed side down, through the second drying interstation 29 which is similar to the first drying station and comprises a similar elongate air knife 30 and a similar spaced pair of extraction units 31.

The line of forced hot air from the second knife 30, across the width of the copy sheets printed in station 12, substantially dries the second-applied ink images by evaporating the vehicle therefrom, after which the

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dried, copy sheets 18 are conveyed by downstream feed rollers 19 for entry of the twice printed copy sheets 18 into the next printing station 13 where ink images of a third color are printed over the pre-applied, pre-dried ink images, and are dried at the next downstream interstation drier 29 prior to entry into the final printing station 14. The final downstream station 14 can, if desired, be a coating application station which is similar to the inking stations 11 to 13 with respect to flexographic plate cylinder 20 and its associated rollers, except that the plate has an overall or spot coating surface, and coating composition rather than ink is fed thereto from supply 25.

Thus, the station 14 can be a coating station for the application of continuous spot coatings onto the pre-dried printed copy sheets 18 which are transported by feed rollers 19 past a final downstream drying station 29 and its air knife 30 to evaporate the water or other volatile solvent/diluent from the coating and form final copies 18 which are cut, creased, folded and/or glued and stacked.

In operation, a succession of cardboard copy sheets 18 is automatically moved in a straight line by feed roller 19 and transported through two or more ink printing stations into printing contact with two or more flexographic cylinders 21 to print images, such as of different colors, on predetermined similar and/or different areas of the underside of each copy sheet, using conventional aqueous flexographic inks containing volatile organic solvent(s) and water. At each ink-printing station 11 to 14 a flexographic printing plate is fastened to a plate cylinder 21 and inked by means of metering roller 22. The ink is selectively received by the image areas of the plate and transferred to the under-surface of a copy sheet 18 passed in the nip of cylinder 21 and impression cylinder 20. At this point, the ink images on each imaged copy sheet 18 still contain the volatile organic solvent and water. Rather than moving the inked copy sheets 18 directly from the first ink printing station to the next ink printing station 12, as is conventional in the art, the present method and apparatus provides for intermediate or interstation drying of the inked copies to evaporate the volatile organic solvent from the ink images and copy sheet to form solvent-free copies 18 prior to the application of new ink images thereover.

Flexographic processes are conventionally used to print ink images onto absorbent paperboard, drying of the ink images being caused by the absorption of the volatile ink vehicle into the copy sheet. Heretofore it has not been possible to apply high quality multicolor ink images onto cardboard in a single pass on straight line flexographic machines because the volatile solvent/diluent of the after-applied ink images redissolves and smears the first applied images which mask the absorbent copy sheet against rapid absorption of the after-applied solvent. The same problem occurs when solvent/diluent-applied coating compositions are applied over ink images in the flexographic process.

The present invention solves these problems by providing the interstation forced hot air driers between each of the liquid application stations on a straight line flexographic printing and/or coating apparatus, whereby the volatile solvents and water are evaporated to dry the ink images rapidly before additional images or coatings are printed thereover. Rapid evaporation drying renders the dry ink images resistant to being dissolved or smeared, and reduces the dwell time of the

after applied solvents. Conventional drying by absorption is very slow, does not remove the solvents, diluents or water from the copy sheets and retards drying in cases where the later applied composition is applied over pre-printed areas of the absorbent copy sheet.

Thus the present flexographic printing process makes it possible to print stiff cardboard copy sheets, even those which have little or no porosity and little or no absorbing ability, such as cardboard having a printing face of high quality non-absorbent paper or plastic-coated cardboard, corrugated plastic board, and other similar materials on which quality images could not be printed by conventional flexographic printing processes.

It is to be understood that the above described embodiments of the invention are illustrative only and that modifications throughout may occur to those skilled in the art. Accordingly, this invention is not to be regarded as limited to the embodiments disclosed herein, but it is to be limited as defined by the appended claims.

What is claimed is:

1. In a flexographic, straight line printing machine comprising a plurality of liquid application stations each comprising a printing cylinder, at least one of which is an upstream ink printing station for the printing of ink images containing a volatile solvent/diluent onto a succession of individual cardboard copy sheets as such sheets are moved therethrough, and at least one of which is a downstream printing station, and means for continuously feeding said individual copy sheets, without bending, through said liquid application stations, the improvement which comprises an intermediate drying station comprising at least one forced hot air means positioned between each of said liquid application stations to apply a line of forced hot air across the direction of travel of said sheets as they move therepast to effect the evaporation of the solvent/diluent from the ink images printed on said cardboard copy sheets prior to the movement of the ink-imaged copy sheets into the next liquid application station, to effect the drying of said images prior to the application of the ink images or a coating thereover.

2. A flexographic, straight line printing machine according to claim 1 in which one or more of the downstream application stations comprise coating stations for the application of spot coatings or continuous coatings, to said copy sheets.

3. A flexographic, straight line printing machine according to claim 1 in which each said intermediate drying station also comprises a vapor extraction means.

4. A flexographic straight line printing machine according to claim 1 which further comprises a final station for cutting the printed cardboard copy sheets.

5. A flexographic, straight-line printing machine according to claim 1 comprising at least two adjacent ink printing stations for printing ink images of different colors in partial or complete registration on said cardboard copy sheets.

6. A method for the flexographic printing of a succession of cardboard copy sheets on a continuous straight line, flexographic printing machine which comprises the steps of continuously feeding a succession of individual cardboard copy sheets, without bending, through a plurality of liquid application stations, each having a printing cylinder, including at least one upstream ink printing station and one or more downstream stations, printing images comprising volatile solvent/diluent-containing ink onto said copy sheets as they

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move through each of said ink-printing stations to form imaged copy sheets, heating said imaged sheets after each ink-printing station by moving them past forced hot air which applies a line of forced hot air across the direction of travel of said sheets to substantially-completely evaporate the volatile solvent/diluent therefrom to form dry imaged copy sheets, prior to movement thereof into the next liquid application station,

7. A method according to claim 6 in which one of said downstream printing stations comprises a coating station in which a coating is applied which covers the dry images printed at the ink printing stations.

8. A method according to claim 7 in which a said coating is applied comprising a partial or spot coating

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which overlies only a portion of the dry images printed at the ink printing stations.

9. A method according to claim 6 in which drying is accomplished by directing a narrow line of forced hot said air from air knives against said imaged copy sheets.

10. A method according to claim 6 in which the evaporated solvent/diluent is extracted from the area at which it is evaporated.

11. A method according to claim 6 which comprises printing ink images of different colors in partial or complete registration at at least two adjacent ink printing stations.

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CONFIDENTIAL
SUBJECT TO
PROTECTIVE ORDER

W001018

EXCLUSIVE LICENSE

This Exclusive License is granted effective as of March 11th, 1991, by BIROW, INC., a Connecticut corporation ("Licensor") having its principal place of business at 8 Clover Lane, Westport, Connecticut 06880, to PRINTING RESEARCH, INC., a Texas corporation ("Licensee") having its principal place of business at 10954 Shady Trail, Dallas, Texas 75220.

WHEREAS, Licensor is the owner of record of the following:

- 1) United States Letters Patent No. 4,796,556, Adjustable Coating and Printing Apparatus by John W. Bird issued June 27, 1989; and
- 2) United States Letters Patent No. 4,841,903, Coating and Printing Apparatus Including an Interstation Dryer by John W. Bird issued June 27, 1989; and
- 3) United States Letters Patent No. 4,895,070, Liquid Transfer Assembly Method by John W. Bird issued January 23, 1990; and
- 4) United States Letters Patent No. 4,939,992, Flexographic Coating and/or Printing Method and Apparatus Including Interstation Driers by John W. Bird issued June 10, 1990; and
- 5) Application for United States Letters Patent filed in the U.S. Patent and Trademark Office on April 11, 1989, under U.S. Serial No. 07/336435 with respect to Printing Method and Apparatus Including Interstation Drying by John W. Bird;

WHEREAS, Licensee desires to obtain the exclusive right and license to make, use and sell products covered by such Letters Patents and Application for Letters Patent;

NOW, THEREFORE, in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Licensor hereby

EXCLUSIVE LICENSE - Page 1

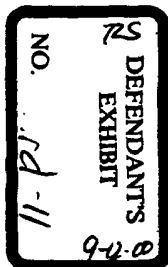
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grants to licensee the exclusive, irrevocable, worldwide right and license to make, have made, use, manufacture, market, sell, sublicense, lease and otherwise dispose of any and all products, apparatus, devices, equipment, implements, mechanisms, assemblies, methods, techniques, patterns, procedures, routines and systems covered by the aforementioned Letters Patent and Application for Letters Patent.

Licensor represents and warrants that it has not granted and will not grant to others any rights inconsistent with the rights granted herein, and that said Letters Patents and Application for Letters Patent are free and clear of all encumbrances and liens.

IN WITNESS WHEREOF, Licensor has executed this Exclusive License on the date first above written.

LICENSOR:

BIROW, INC.

By: 

Name: John M. Bird
Title: President

By: 

Name: Thomas A. Rowley
Title: Secretary

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SUBJECT TO
PROTECTIVE ORDER

RECORDED
PATENT AND TRADEMARK
OFFICE

APR 25 1991

STATE OF TEXAS

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ss.

COUNTY OF DALLAS

On this 12th day of March, in the year of 1991, before me personally appeared JOHN W. BIRD, personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the written instrument as President of the corporation therein named, and acknowledged to me that the corporation executed it pursuant to its bylaws or a resolution of its board of directors.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Linda Nottingham

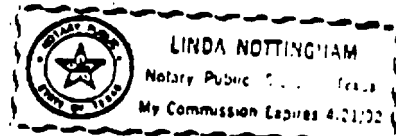
Name (Print): LINDA NOTTINGHAM
Notary Public, State of Texas
My commission expires: 4/21/92

STATE OF CONNECTICUT

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ss. WESTPORT

COUNTY OF FAIRFIELD



On this 9th day of March, in the year of 1991, before me personally appeared THOMAS A. ROWLEY, personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the written instrument as Secretary of the corporation therein named, and acknowledged to me that the corporation executed it pursuant to its bylaws or a resolution of its board of directors.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

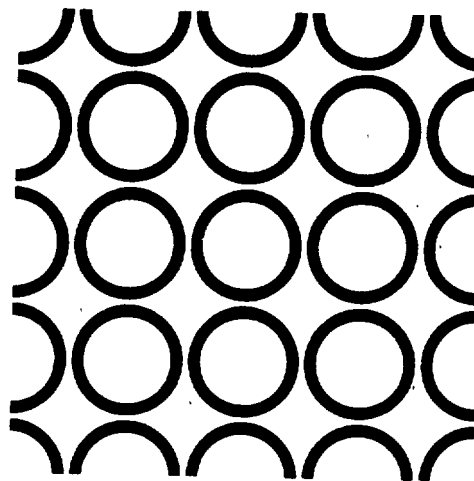
[Signature]
Name (Print): _____
Notary Public, State of Connecticut
My commission expires: _____

VIRGINIA M. LANGE

Notary Public
Commission Expires March 31, 1994

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SUBJECT TO
PROTECTIVE ORDER

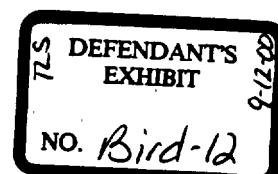
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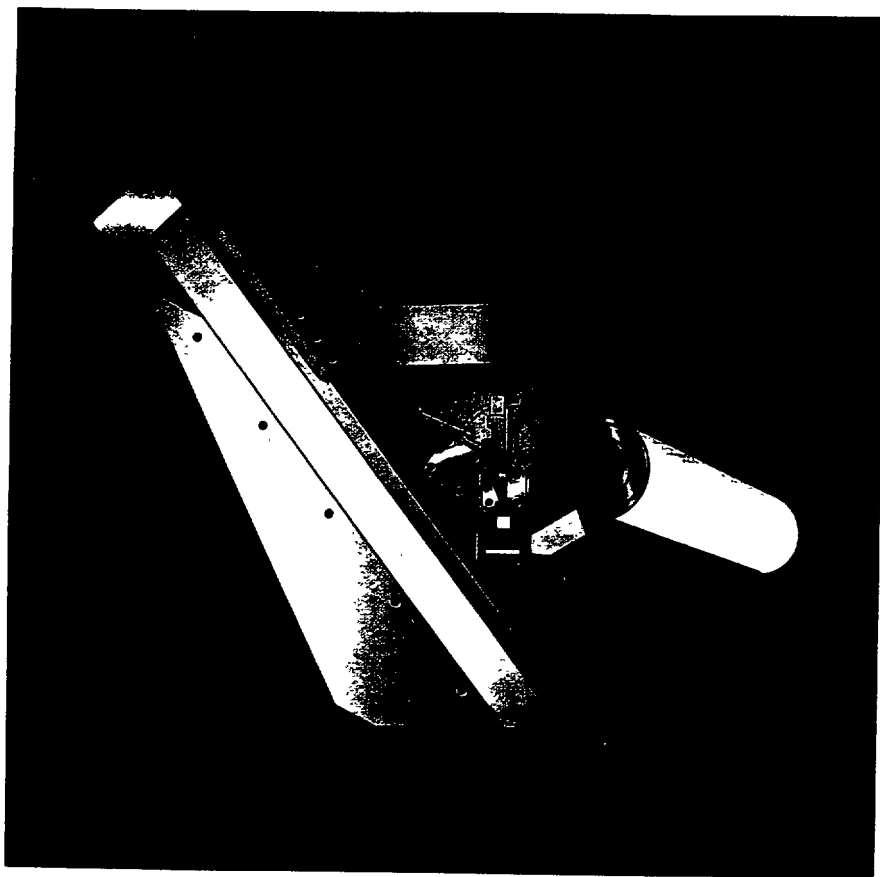
SUPER BLUE

**PBC PLATE/BLANKET
AND PC PLATE COATER**

**BECAUSE TO MOST
CUSTOMERS HIGH
GLOSS MEANS
HIGH QUALITY**



It is now possible to dramatically increase gloss levels of printed sheets



High-impact quality at low cost

Among print buyers and consumers alike, "gloss" and "feel" are strongly associated with quality. Through our systems, printers can profitably achieve superb finish-quality and high-impact appearance at low cost.

Our Plate/Blanket Coater (PBC) maximizes your coating flexibility, giving you more precise control and broader capabilities than ever before. Offering full-coverage gloss or matte coatings as well as spot coatings of impeccable register and quality, the PBC smoothly and consistently applies uniform coatings of a wide viscosity range to any desired thickness.

- Precision spot-register applications
- Elimination of halos and hard/beaded edges
- Maximum coating application

The advent of coatable, water-based and UV-curable resins offers sheetfed color printers the unprecedented power to add high gloss levels, special effects and unusual surface treatments to their range of *in-house* capabilities. These coatings vastly exceed the gloss potential of varnish, while banishing forever the mess and quality problems spray powder causes in the pressroom.

Maximize press utilization while minimizing clean-up

Because the PBC is easily retracted when coating is not necessary, the press unit used for coating can function as a full printing unit whenever you need it. Or, you can easily establish a dedicated coating line on an under-used press. What's more, with our coaters, you will eliminate forever the press downtime associated with blanket cutting, packing and image registration. No other coater can accomplish this.

Our coaters minimize wash-up and makeready, offering unrivaled time and cost savings. Ruggedly constructed, easy to operate and maintain, our patented coaters are on the leading edge of industry technology.



- Makeready as fast as regular ink presses
- Elimination of slinging and misting problems
- Minimized wash-up times

Improved quality means customer satisfaction

The PBC provides unparalleled quality control, enabling you to coat with as much control as you print. Coating material is applied as if it were another ink color, using your printing unit as it was designed to operate — to lay down a precise film membrane on the substrate.

What's more, the PBC achieves this high-impact appearance in a fraction of the time it takes to varnish or laminate — and without the mess and quality control problems associated with these now obsolete methods. So your customers receive the highest quality product, with an incredibly fast turnaround.

Super Blue Plate/Blanket Coater

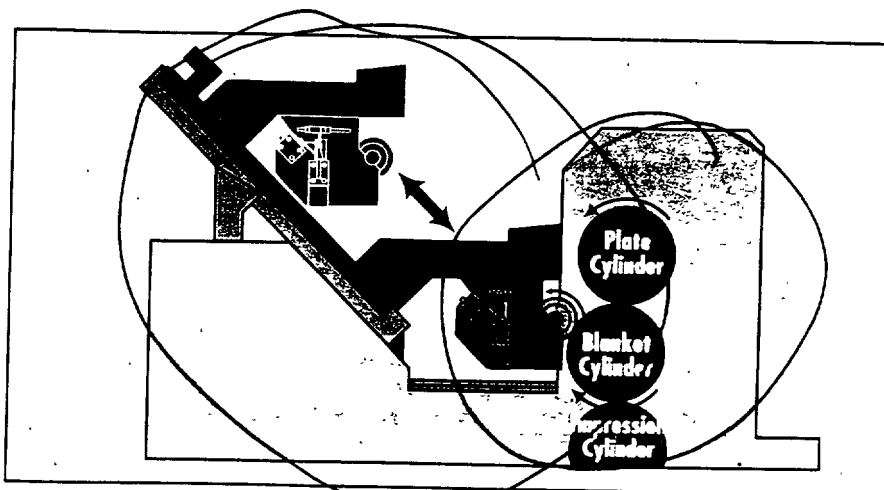
The PBC applies coating either at the blanket, for full coverage work, or at the plate, for precise register application of spot coating without hard edges. Or when coating is not necessary, it can be easily retracted to allow for regular printing uses. Unlike other coater designs that haphazardly squeeze coating material onto substrate under pressure — the shear-coating PBC works neatly and precisely.

In the blanket mode when overall coverage is required, PBC's design provides for fast makeready and smooth application of the coating.

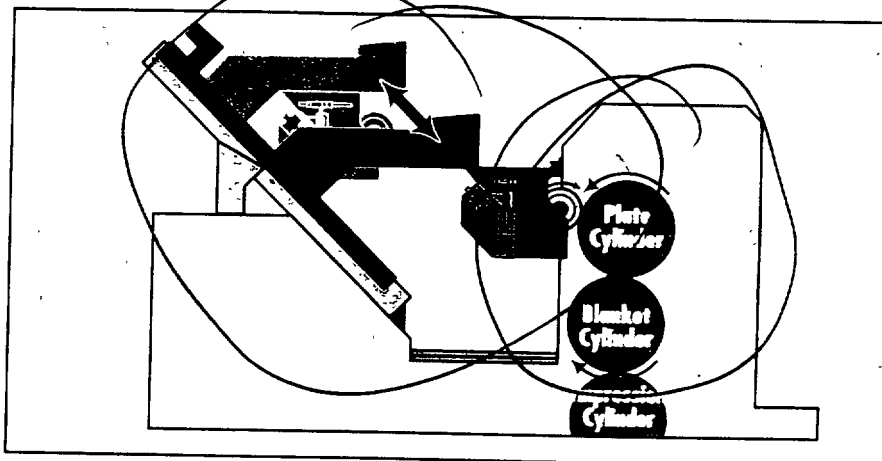
In the plate mode, the coater applies coating to a relief image on the plate cylinder to apply a uniform thickness of the coating film to the blanket cylinder. This coating "image" is then transferred by the blanket to the substrate, ensuring precise registration in all axes. Coating thickness and pressure between the plate, blanket and impression cylinders are all accurately and easily controlled.

Both the PBC and its Common Impression Cylinder (CIC) press counterpart, the Plate Coater (PC), improve operational profitability by eliminating the extensive "wash-up" downtime associated with coater dampeners — the only alternative with a CIC press. The typical two to three hour wash-up is reduced to less than a half hour, and the entire process is carried out independently from the press.

Being fully retractable, the coater does not interfere with the dampening system, ensuring fast changeover from print to coat and coat to print. This makes your entire operation more efficient *and* more profitable.



PBC in Blanket Position

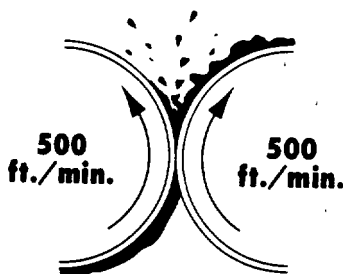


PBC in Plate Position

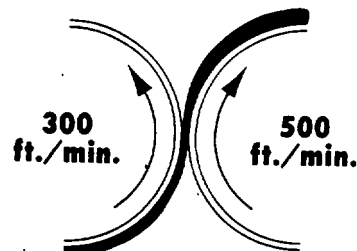
Productivity, safety and long-term value

As a supplier of precision-engineered coating and drying systems for the graphic arts and packaging industries, Printing Research, Inc.'s high-performance systems improve your bottom-line profitability by adding value to your existing operations. With our systems, you improve the quality of your services by becoming a low-cost provider of the highest quality printing — all while maximizing the utilization of your existing presses. Our dependable, high-performance systems will increase your sales, profits and customer satisfaction levels.

See the difference yourself. Experience a demonstration of our PBC and PC and witness how coatings can be as easy to handle and precise to apply as the ink used in daily printing!



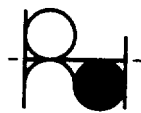
NIP Application



SHEAR Application

Instant-drying inks and the elimination of spray powder have been the dream of every printer and printing buyer. The idea was put forward in the 1970's and 80's that it would be possible to print with conventional inks and apply a coating which would dry completely before placement on the delivery stack. This would place a dry skin over the ink, eliminating offsetting, sheet marking and the need for spray powder. The inks dry under the coating.

The advent of the 90's has made the dream a reality. It is now possible to print superior quality with conventional inks and coat the surface in order to deliver a dry, mark-free sheet at full production speeds. This is what the Super Blue products from Printing Research accomplish for you.



Printing Research, Inc.

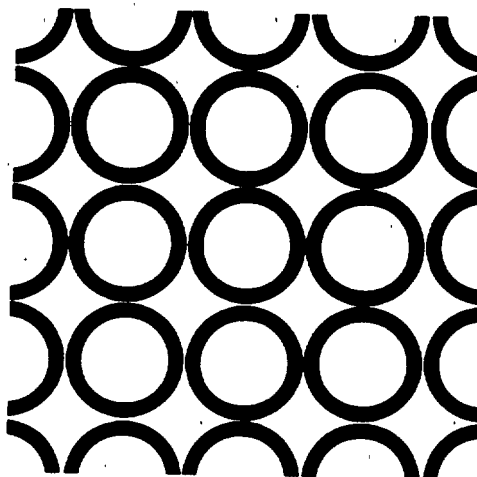
10954 Shady Trail Dallas, Texas 75220 U.S.A.

Telephone 214-353-9000

Telex 794028 Superblue dal

Fax 214-357-5847

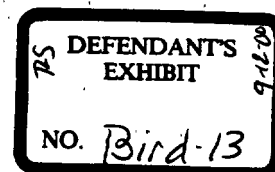
Patented



SUPER BLUE

**THE EZ PRINT/
COAT FAMILY**

**MAXIMUM FLEXIBILITY AND
A TOUCH OF BRILLIANCE**



Add Innovative In-Line Interstation and End of Press Printing Coating.

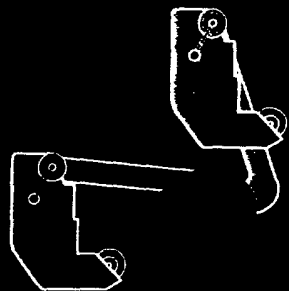


Plate
Cylinder

Blanket
Cylinder

Impression
Cylinder

Patents Pending

The Super Blue EZ Interstation Flexo Printer/Coater is installed directly onto a print unit, for applying any one of a number of aqueous or UV based metallic/opaque inks between print units.

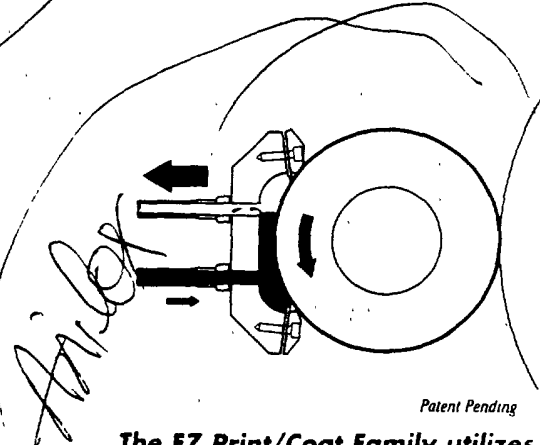
Have you ever wanted to add in-line coating capabilities, metallic, opaque, or other specialized applications to specific print units? Was your decision not to enter this market influenced by mediocre quality, undesirable environmental considerations, or the prohibitive cost?

Search no more ... Your needs and concerns have been resolved!

Printing Research, Inc., invites you to review the patented family of EZ Print/Coat products as described in this brochure. We are confident that you will find the perfect solution to your present and future printing demands.

EZ Interstation Flexo Printer/Coater

The Super Blue EZ Interstation Flexo Printer/Coater is retractable so that it can be swung up and above the print unit for conventional printing or swung into the blanket position to offer complete application variations from job to job. The patented coating head assembly is comprised of two main components. A combination of engraved anilox rolls are offered to provide a consistent overall ink/coating weight. The anilox rolls yield excellent ink/coating release and lay characteristics with no fear of plugging, leaking, or misting due to the unique enclosed doctor blade assembly.



Patent Pending

The EZ Print/Coat Family utilizes a universal coating head configuration for superior ink and coating transfer.

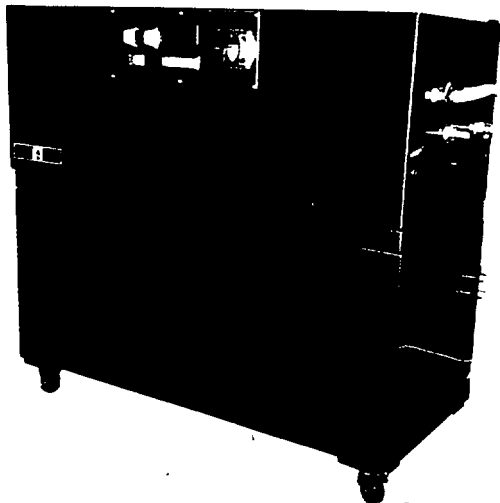
EZ Blanket Coater

The Super Blue EZ Blanket Coater is mounted such that the coating head can be automatically removed from its coating position for conventional use of the last print unit as well as full operator access. Although the EZ Blanket Coater is an end of press retrofit, it offers the same coating release and lay characteristics without fear of plugging, leaking, or slinging due to the same unique enclosed doctor blade assembly.

EZ Automatic Pump and Recirculation System

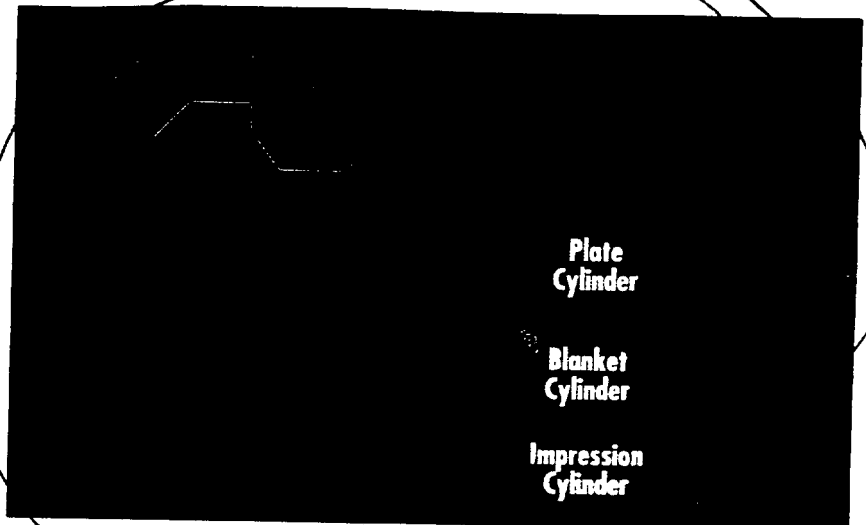
The Super Blue EZ Automatic Pump and Recirculation system is designed to eliminate the headaches associated with other pump systems and complicated wash-up procedures that impact your production time and bottom line. The circulation system is a standard component that allows the operator to push a button and walk away. Whether you are purging, coating, washing-up or by-passing each is fully automated and timed. In addition, the clean-up water reservoir is heated to provide optimum line and head cleaning.

The Super Blue EZ Automatic Pump and Recirculation System is offered as a separate product to suit most anilox coating systems, whether it be a blanket coater, tower coater, flexographic coater or web coater.



Patented

The Super Blue EZ Automatic Pump and Recirculation System is common to the entire EZ Print/Coat Family as a standard component.

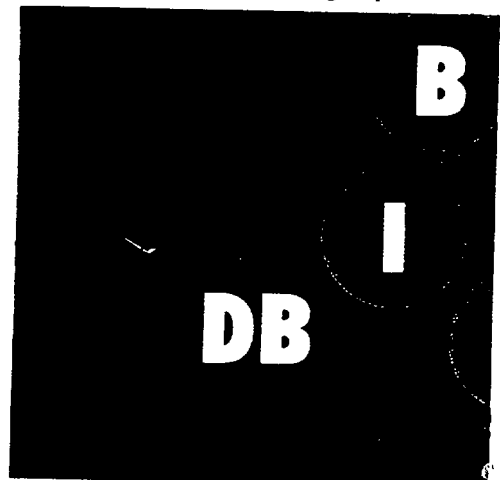


Patented and Patents Pending

The Super Blue EZ Blanket Coater is installed directly onto the delivery or coating/dummy unit of your press for applying any one of a number of aqueous or UV coatings or inks at the last print unit blanket cylinder.

EZB.

The Super Blue EZ Impression Cylinder Coater is installed between the gripper chain rails of the press delivery, but utilizes its own delivery blanket cylinder to add a coating unit without losing a print unit.



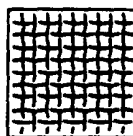
Patented



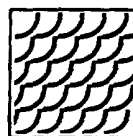
EZ



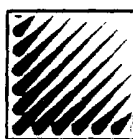
Super Blue® I and II
Anti-Marking Systems



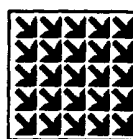
Super Blue® BACVAC
Vacuum Transfer and
Delivery Systems



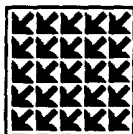
Super Blue® High
Velocity Hot Air Dryers



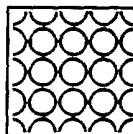
Super Blue® Air Blanket
I and II Infra-Red
Drying Systems



Super Blue® Water Cooled
and 'Cold' UV Dryers



Super Blue® In-Line and
Off-Line Coaters



SUPER BLUE®



Printing Research, Inc.

10954 Shady Trail Dallas, Texas 75220 U.S.A.

Telephone: 214-353-9000

Telex: 794028 Superblue dal

Fax: 214-357-5847

1-800-MARK-LESS

(1-800-627-5537)



Another Fine Product From The Makers Of The Patented Super Blue® System



US005176077A

United States Patent [19]

DeMoore et al.

[11] Patent Number: 5,176,077

[45] Date of Patent: Jan. 5, 1993

[54] COATING APPARATUS FOR SHEET-FED,
OFFSET ROTARY PRINTING PRESSES[75] Inventors: Howard W. DeMoore, 2552 Royal
La., Dallas, Tex. 75229; David D.
Douglas, Garland; Steven M. Person,
Seagoville, both of Tex.

[73] Assignee: Howard W. DeMoore, Dallas, Tex.

[21] Appl. No.: 752,778

[22] Filed: Aug. 30, 1991

[51] Int. Cl.: B41F 9/00

[52] U.S. Cl.: 101/142; 101/147;
101/232; 101/348; 118/46[58] Field of Search: 101/135, 424.1, 142,
101/148, 155, 157, 177, 217, 232, 246, 329, 330,
331, 408, 409, 419, 422, 348-349; 118/46, 211,
236, 249, 257, 258, 261, 262, 263, 206, DIG. 15

[56] References Cited

U.S. PATENT DOCUMENTS

4,270,483	6/1981	Butler et al.	118/46
4,372,344	2/1983	Rebel	118/46
4,399,767	8/1983	Simeth	118/46
4,402,267	9/1983	DeMoore	101/419
4,524,712	6/1985	Ito	118/46
4,685,414	8/1987	DiRico	118/46
4,704,296	11/1987	Leanna et al.	427/9
4,706,601	11/1987	Jahn	118/46
4,779,557	10/1988	Frazzetta	118/46

4,796,556	1/1989	Bird	118/46
4,821,672	4/1989	Brune	118/261
4,841,903	6/1989	Bird	118/46
4,848,265	7/1989	Komori	118/46
4,893,070	1/1990	Bird	101/148
4,919,048	4/1990	Tyler	101/217
4,934,305	6/1990	Koehler	118/46
4,939,992	7/1990	Bird	101/183
4,977,828	12/1990	Douglas	101/142
5,088,404	2/1992	MacConnell et al.	101/232
5,127,329	7/1992	DeMoore et al.	101/232

FOREIGN PATENT DOCUMENTS

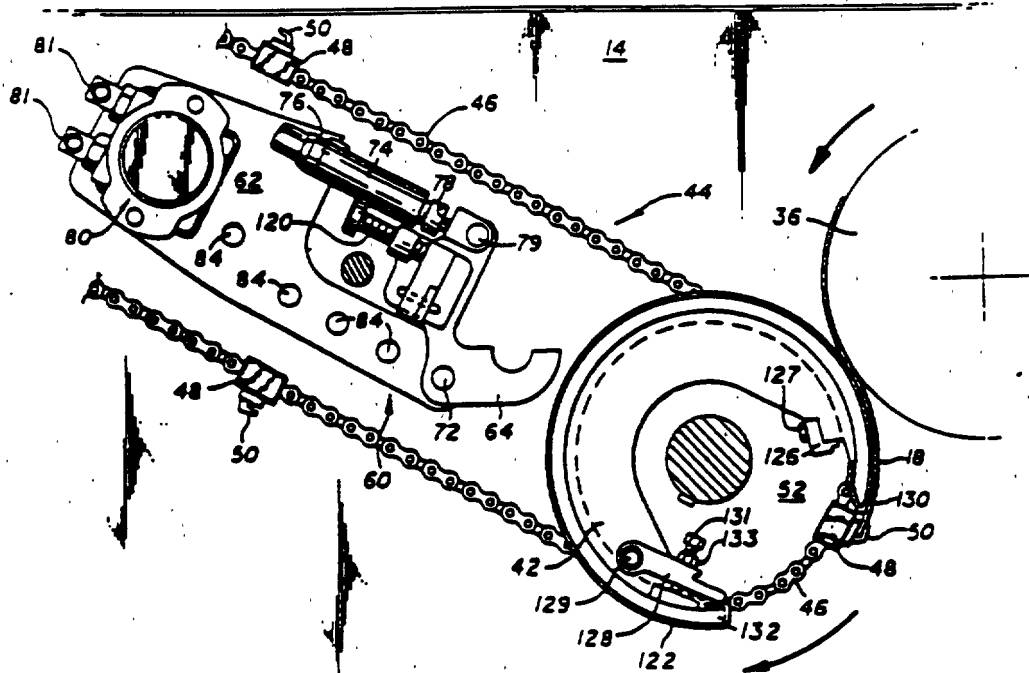
0270054	6/1988	European Pat. Off.	101/419
2151185	7/1979	Fed. Rep. of Germany	101/424.2

Primary Examiner—Eugene H. Eickholt
Attorney, Agent, or Firm—Dennis T. Griggs

[57] ABSTRACT

A coating apparatus for use in a sheet-fed, offset rotary printing press to selectively apply a protective and/or decorative coating to the wet ink surface of freshly printed sheets and including a coating unit having a pick-up roller for supplying aqueous coating material from a reservoir to the surface of a delivery cylinder mounted on a press delivery drive shaft, the delivery cylinder performing the dual function of a coating applicator roller and a delivery cylinder during coating operations.

22 Claims, 5 Drawing Sheets

DEFENDANT'S
EXHIBIT

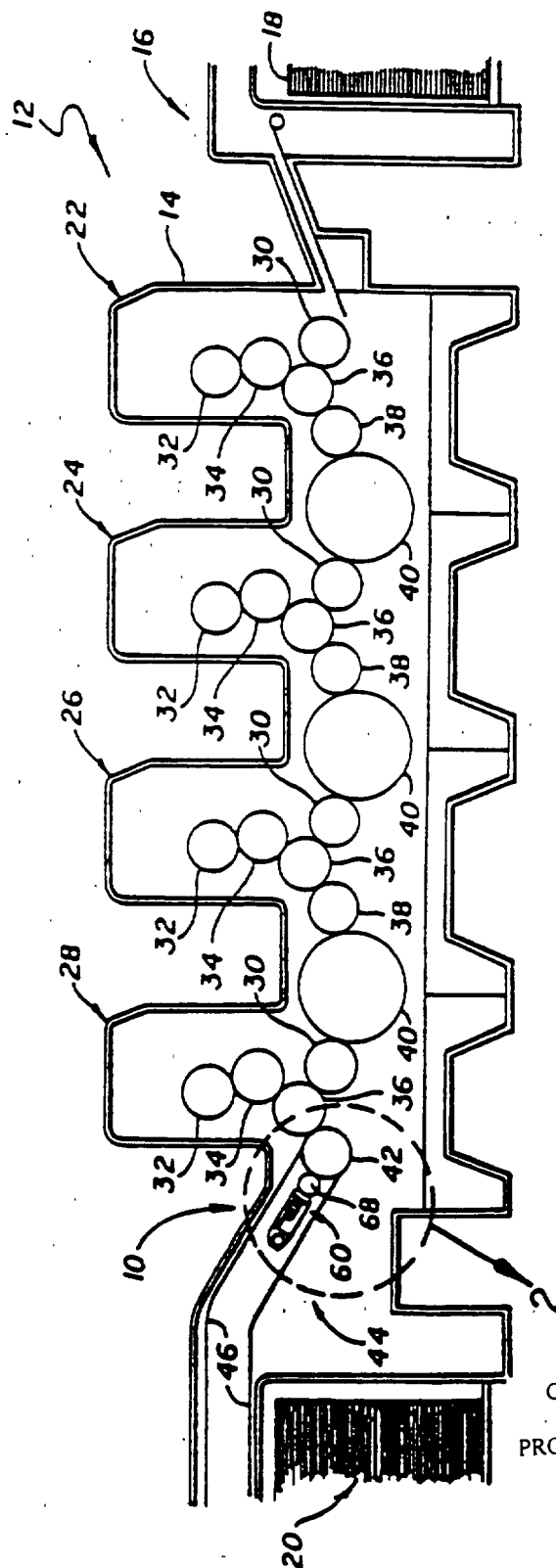
NO. Bird-14

CONFIDENTIAL
SUBJECT TO
PROTECTIVE ORDER

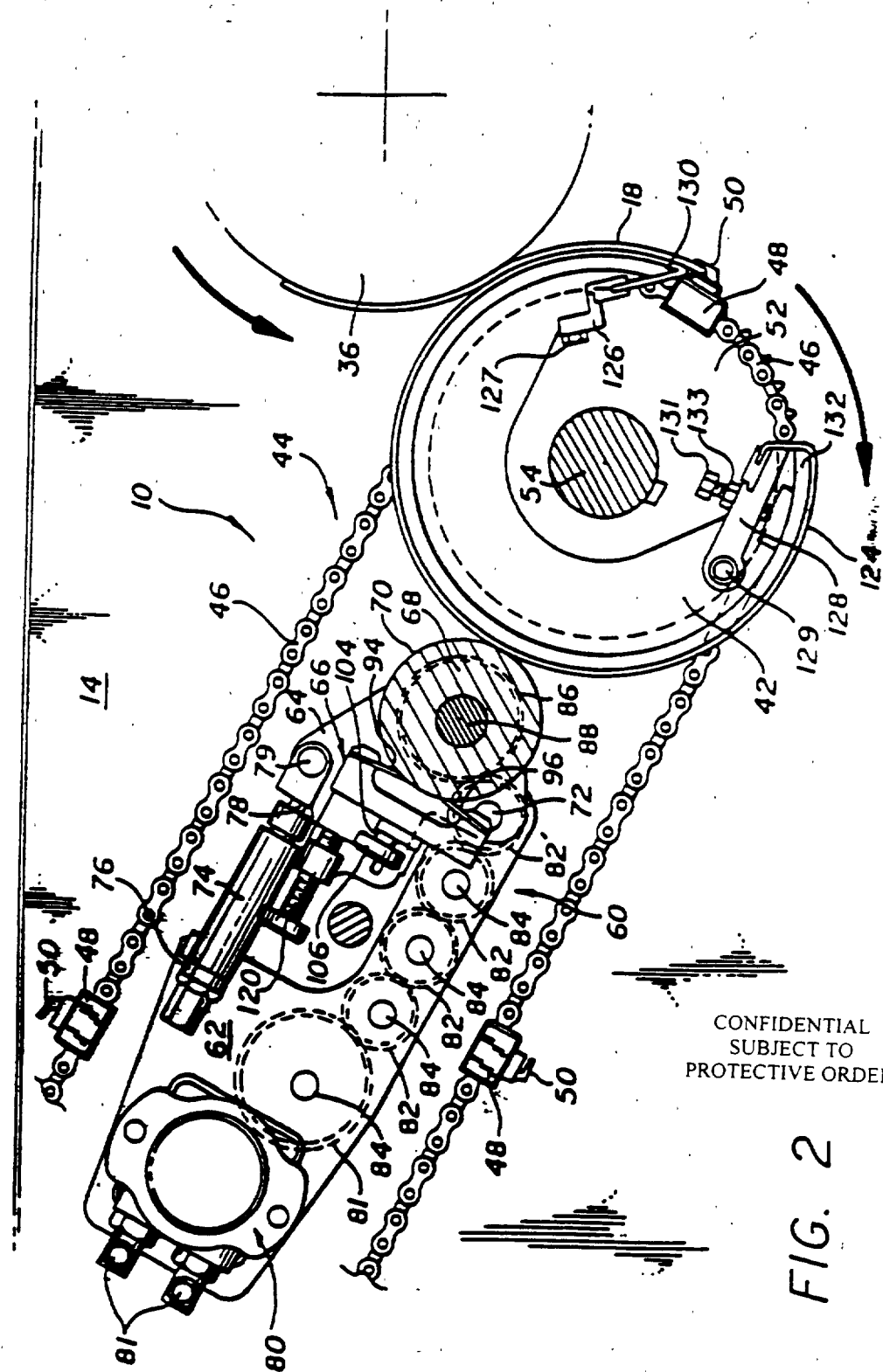
W001019

TOP VIEW

FIG. 1



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FIG. 2

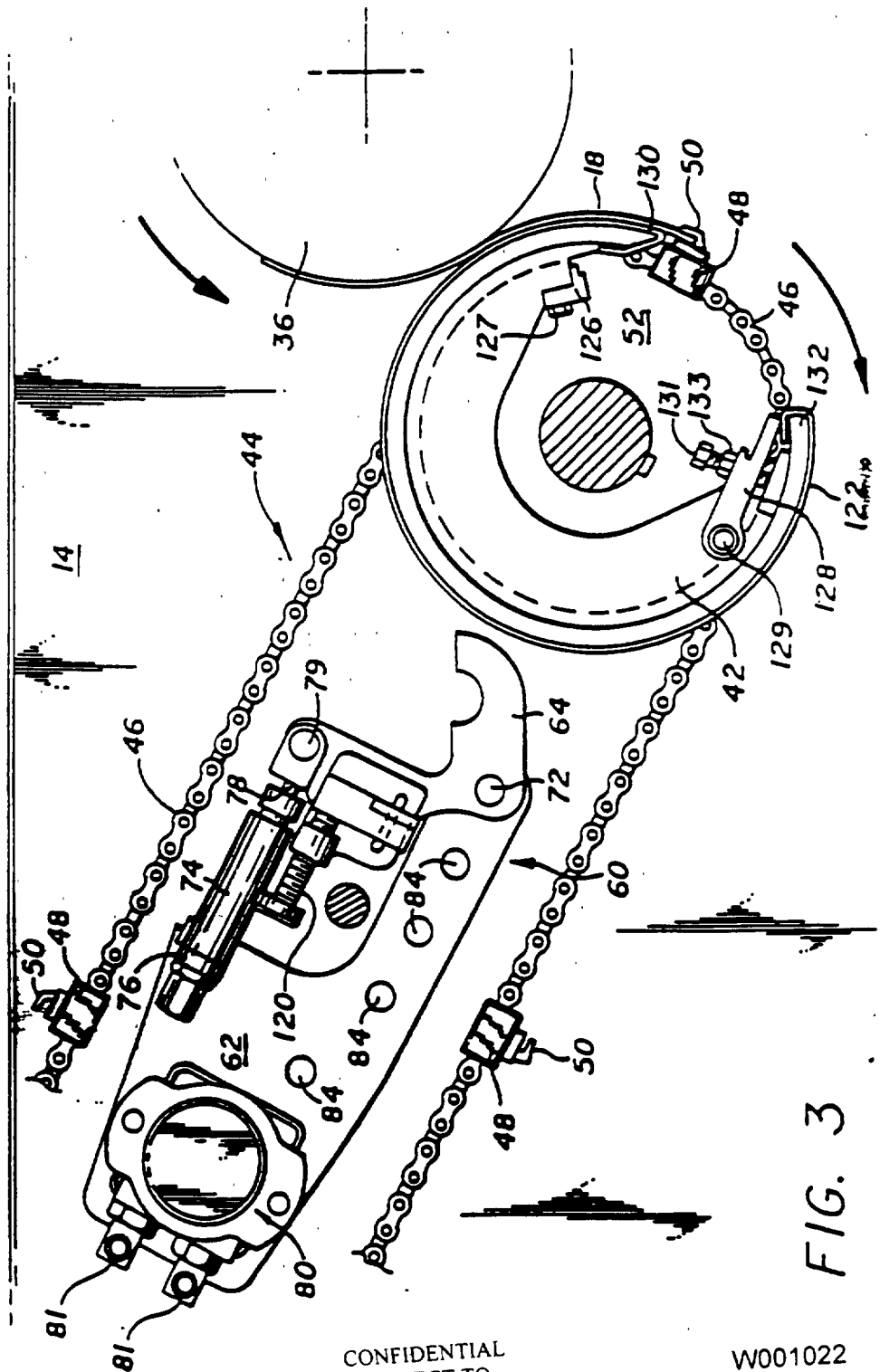


FIG. 3

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W001022

FIG. 4

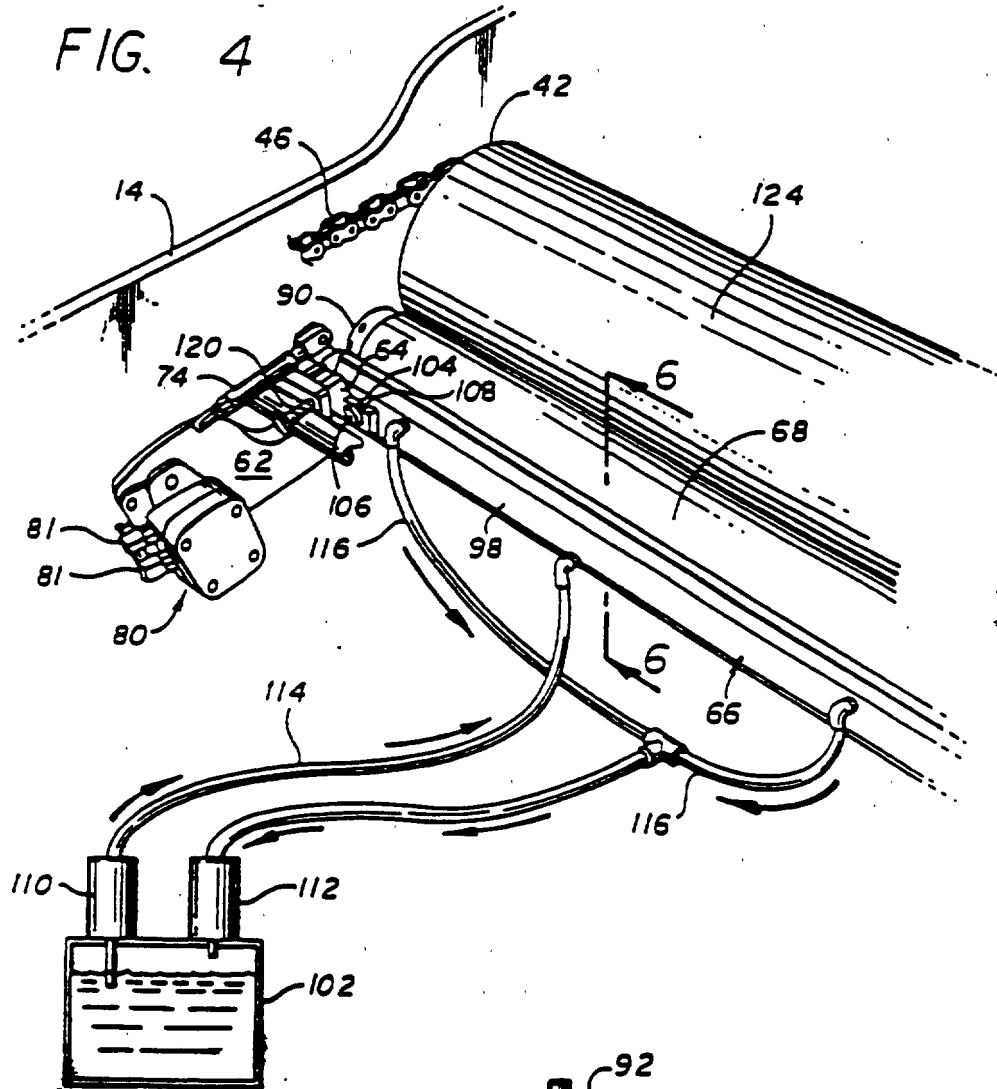
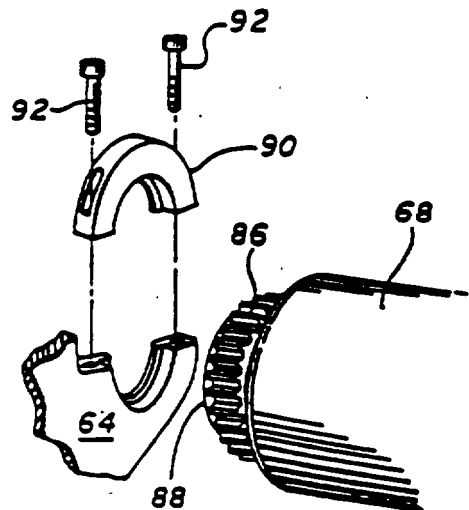


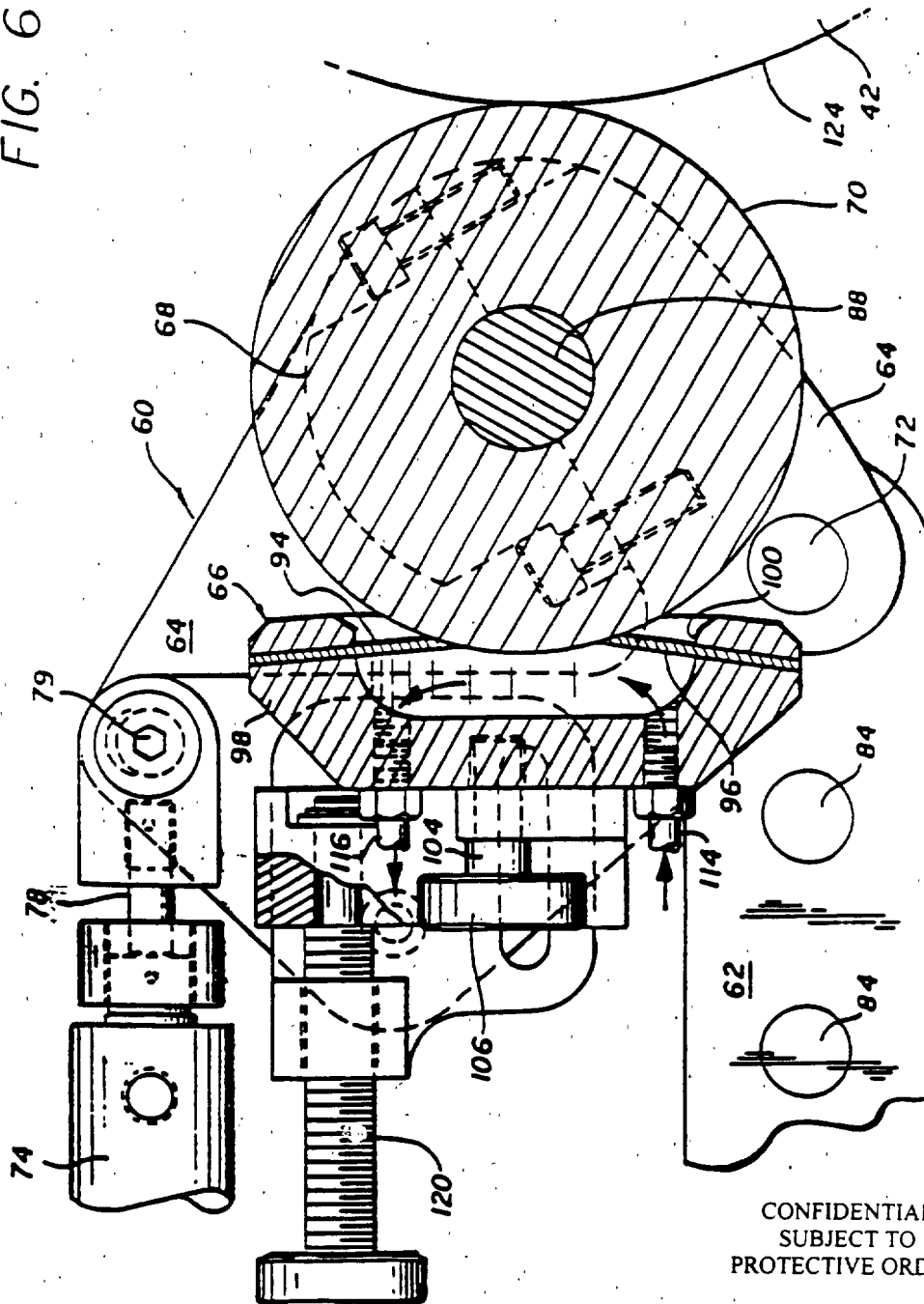
FIG. 5



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FIG. 6



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PROTECTIVE ORDER

W001024

COATING APPARATUS FOR SHEET-FED, OFFSET ROTARY PRINTING PRESSES

BACKGROUND OF THE INVENTION

This invention relates to sheet-fed, offset rotary printing presses, and more particularly, to a new and improved apparatus for the in-line application of protective and decorative coatings to the printed surface of freshly printed sheets.

Conventional sheet-fed, offset rotary printing presses typically include one or more printing stations through which individual sheets are fed and printed with wet ink. After final printing, the sheets are fed by a delivery conveyor system to the delivery end of the press where the freshly printed sheets are collected and stacked. In a typical sheet-fed, offset rotary printing press such as the Heidelberg Speedmaster line of presses, the delivery conveyor system includes a pair of endless gripper chains carrying laterally spaced gripper bars and grippers which are used to grip and pull freshly printed sheets from the impression cylinder and convey the sheets toward the sheet delivery stacker. The gripper chains are driven in precisely timed relation to the impression cylinder by gripper chain sprocket wheels laterally spaced between a delivery drive shaft mounted on opposite sides of the press frame, the delivery drive shaft being mechanically coupled by gears for synchronous rotation with the impression cylinder.

Since the inks used with offset type printing presses typically remain wet and tacky for some time after printing, special precautions must be taken to insure that the wet inked surface of the freshly printed sheets are not marked or smeared as the sheets are transferred from one printing station to another, and through the delivery system to the sheet delivery stacker. One system for insuring that the freshly printed sheets are not marked or smeared during transfer is the transfer or delivery cylinder system marketed by Printing Research, Inc., of Dallas, Texas under its registered trademark "SUPER BLUE". That system, which is made and sold under license, is made in accordance with and operates as described in U.S. Pat. No. 4,402,267, issued Sep. 6, 1983 to Howard W. DeMoore, the disclosure of which is incorporated herein by this reference. In that system, marking and marring of freshly printed sheets is prevented by employing transfer or delivery cylinders provided with a coating of friction reducing material such as PTFE (Teflon) over which are loosely mounted fabric covers, referred to in the trade as "nets", and which support the wet ink side of the freshly printed sheets as they are pulled from the impression cylinder. Typically, in a multi-color press employing the "SUPER BLUE" cylinder system, each transfer cylinder for conveying the freshly printed sheets from one printing station to the next is supplied with a "SUPER BLUE" transfer cylinder system, and the delivery cylinder for conveying the sheets from the last printing station to the sheet delivery stacker is supplied with a "SUPER BLUE" delivery cylinder system. As used hereinafter, the term "net type cylinder" is intended to refer to cylinders having fabric nets disposed over the support surface, such as of the general type disclosed in the aforementioned DeMoore U.S. Pat. No. 4,402,267 and exemplified by the "SUPER BLUE" cylinder system.

Another system which can be used to prevent marking and smearing of the freshly printed sheets is that

disclosed in U.S. application Ser. No. 07/630,308 filed Dec. 18, 1990 entitled Vacuum Transfer Apparatus for Sheet-Fed Printing Presses now U.S. Pat. No. 5,127,329. That application, the disclosure of which is also incorporated herein by reference, discloses an apparatus which can be employed to draw the unprinted side of a freshly printed sheet into engagement with rollers which support the sheet on the unprinted side during transfer or delivery of the sheet from the impression cylinder after printing so that the wet ink on the freshly printed sheet does not come in contact with other apparatus in the press. The vacuum transfer apparatus disclosed in that application can be used as an alternative to the net type cylinder system disclosed in the aforementioned DeMoore patent, or when used in a perfecting press, as a supplement to that system, the vacuum transfer apparatus being primarily intended for use when only one-sided sheet printing is being performed by the press, and the net type cylinder system being used when the press is operating in the perfecter mode with two-sided sheet printing.

In some printing applications, it is desirable that the press be capable of applying a protective and/or decorative coating over all or a portion of the surface of the printed sheets. Such coatings typically are formed of a UV-curable or water-soluble resin applied as a liquid solution or emulsion by an applicator roller over the freshly printed sheets to protect the ink and improve the appearance of the sheets. Use of such coatings is particularly desirable when decorative or protective finishes are required such as in the production of posters, record jackets, brochures, magazines, folding cartons and the like. In cases where a coating is to be applied, the coating operation is carried out after the final ink printing has been performed, most desirably by an in-line coating application, rather than as a separate step after the printed sheets have been delivered to the sheet delivery stacker.

Various suggestions have been made for applying the coating as an in-line press operation by using the final printing station of the press as the coating application station. For example, in U.S. Pat. Nos. 4,270,483, 4,685,414, and 4,779,557 there are disclosed coating apparatus which can be moved into position to allow the blanket cylinder of the last printing station of a press to be used to apply a coating material to the sheets. In U.S. Pat. No. 4,796,556 there is disclosed a coating apparatus which can be selectively moved between the blanket cylinder or the plate cylinder of the last printing station of the press so that that station can be used as a coating station for the press. However, when coating apparatus of these types are used, the last printing station can not be used to apply ink to the sheets, but rather can only be used for the coating operation. Thus, with these types of in-line press coating apparatus, the press loses the capability of printing its full range of colors since the last printing station is converted to a coating station.

Suggestions for overcoming the problem of the loss of a printing station when coating is desired have also been made, such as that set forth in U.S. Pat. Nos. 4,934,305 which discloses a coating apparatus having a separate timed applicator roller positioned to apply the coating material to the printed sheet while the sheet is on the last impression cylinder of the press. This is said to allow the last printing station to be operated simultaneously as both an ink application station and a coating

station so that no loss of press printing unit capability results. Another approach to providing a coating station without loosing the printing capabilities of the last printing station is to provide a totally separate coating unit down stream of the last printing station so that the coating is applied to the sheets after final printing and before the sheets have reached the sheet delivery stacker. Such an approach is suggested in U.S. Pat. Nos. 4,399,767 and 4,706,601. While each of these suggestions provide coating stations which allow the final printing station to continue to be used for printing, they each suffer from the disadvantages of requiring the provision of separately driven coating applicator rollers and apparatus which must be precisely timed in relation to the movement of the sheet to be coated so as to insure precise registration between application of the coating material and the printed sheet. The provision of separate timed applicator rollers require that the presses be modified to provide sufficient space within the presses to accommodate the added coating apparatus or to increase the length of the presses, and require additional and complex drive connections with the press drive system to achieve the required precise speed correlation between the sheets and the applicator rollers. Such modifications can be both expensive and cumbersome to install and maintain.

Thus, there exists a need for a new and improved in-line apparatus for use in a sheet-fed, offset rotary printing press to selectively apply a protective and/or decorative coating to the printed surface of freshly printed sheets which allows the final press printing station to continue to be used as a printing station, yet which does not require any substantial press modification or the addition of a separate timed applicator roller. As will be explained in more detail hereinafter, the present invention solves this need in an novel and unobvious manner.

SUMMARY OF THE INVENTION

The present invention provides a new and improved in-line apparatus for selectively applying a protective and/or decorative coating to the surface of freshly printed sheets in a sheet-fed, offset rotary printing press which is highly reliable and effective in use, yet which does not require any expensive or substantial press modification or result in any impairment of normal press operating capability. The present invention enables the press to be used to selectively apply the coating material to the freshly printed sheets as the sheets are conveyed from the impression cylinder of the last printing station of the press toward the sheet delivery stacker by utilizing a delivery cylinder mounted to the existing press delivery drive shaft to perform the dual function of a coating material applicator roller and a sheet delivery cylinder so that no modification of the press is required to enable the press to be used for either coating or non-coating operation, and without impairment of any normal press operations.

More specifically, the present invention is intended for use in a sheet-fed, offset rotary printing press of the type having at least one printing station which includes a blanket cylinder and an impression cylinder disposed for printing ink onto sheets passing therebetween, and a delivery conveyor system for pulling freshly printed sheets off the impression cylinder and transporting the sheets toward the press sheet delivery stacker. For use of the present invention, the press must include a delivery drive shaft disposed adjacent to and extending par-

allel with the impression cylinder, and which is driven in timed synchronous relation with the impression cylinder.

In accordance with the invention, a delivery cylinder is mounted to the delivery drive shaft and provided with a coating blanket disposed over the peripheral outer surface of the cylinder, and adapted to engage and support the wet ink side of a freshly printed sheet. A coating apparatus including a supply of liquid coating material and a pick-up roller disposed to receive coating material from the supply, is mounted to the press and operable to permit the pick-up roller to be moved into engagement with the delivery cylinder so that coating material on the pick-up roller is transferred to the coating blanket of the delivery cylinder and then to the freshly printed sheet.

Preferably, the coating apparatus is mounted to the press downstream of the delivery drive shaft, and includes means to selectively move the pick-up roller into and out of engagement with the delivery cylinder. When the pick-up roller is not in the operative position in engagement with the delivery cylinder, the delivery cylinder can be used for conventional noncoating sheet delivery by removing the coating blanket and, preferably, replacing the coating blanket with a fabric net such as of the net type cylinder system previously described. To convert to a coating operation, the coating blanket is attached to the delivery cylinder and, depending upon the thickness of the sheets to be printed, packed with suitable packing sheets to increase the effective diameter of the cylinder so that pressure is applied to the freshly printed sheets against the impression cylinder by the coating blanket covered delivery cylinder. The pick-up roller is then moved to the operative position engaged with the delivery cylinder so that as freshly printed sheets are pulled by the delivery conveyor from the impression cylinder around the delivery cylinder, coating material applied to the delivery cylinder by the pick-up roller is transferred to the freshly printed sheets in the nip between the delivery cylinder and the impression cylinder.

Since the delivery cylinder is driven by the delivery drive shaft in precise timed relation with the impression cylinder, exact registration between the application of coating material and the printed sheet is assured. Further, since the coating of the freshly printed sheets is carried out through use of a delivery cylinder mounted to the existing press delivery drive shaft, no substantial press modifications are required, and the press can be quickly and easily converted between coating and non-coating operation with no loss of printing capability of the final printing station.

Many other features and advantages of the present invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings which disclose, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic side elevational view of a sheet-fed, offset rotary printing press having a coating apparatus embodying the present invention;

FIG. 2 is an enlarged fragmentary side elevational view taken substantially within the circular area designated "T" in FIG. 1 and showing the coating apparatus of the present invention during coating operation;

FIG. 3 is a side elevational view similar to FIG. 2, but showing the coating apparatus in the inoperative position.

tion with the coating pick-up roller and reservoir removed, and the blanket covering over the delivery cylinder replaced with a fabric net for non-coating printing;

FIG. 4 is an enlarged fragmentary perspective view showing one side of the coating apparatus mounted in the press and illustrating the fluid path of coating material from a supply tank to the reservoir of the coating unit;

FIG. 5 is an enlarged fragmentary perspective view illustrating the end mounting of the coating pick-up roller to its support bracket; and

FIG. 6 is an enlarged fragmentary sectional view taken substantially along the lines 6-6 of FIG. 4.

DETAILED DESCRIPTION OF PRESENTLY PREFERRED EMBODIMENT

As shown in the exemplary drawings, the present invention is embodied in a new and improved in-line apparatus, herein generally designated 10, for selective use in applying a protective and/or decorative coating to the freshly printed surface of sheets printed in a sheet-fed, offset rotary printing press, herein generally designated 12. In this instance, as shown in FIG. 1, the coating apparatus 10 is illustrated as installed in a four color printing press 12, such as that manufactured by Heidelberger Druckmaschinen AG of the Federal Republic of Germany under its designation "Heidelberg Speedmaster 102V (40"), and which includes a press frame 14 coupled at one end, herein the right end, with a sheet feeder 16 from which sheets, herein designated 18, are individually and sequentially fed into the press, and at the opposite end, with a sheet delivery stacker 20 in which the finally printed sheets are collected and stacked. Interposed between the sheet feeder 16 and the sheet delivery stacker 20 are four substantially identical sheet printing stations 22, 24, 26 and 28 which can print different color inks onto the sheets as they are moved through the press 10.

As illustrated, each of the printing stations 22, 24, 26 and 28 is substantially identical and of conventional design, herein including a sheet feed cylinder 30, a plate cylinder 32, a blanket cylinder 34 and an impression cylinder 36, with each of the first three printing stations 22, 24, and 26 having a transfer cylinder 38 disposed to withdraw the freshly printed sheets from the adjacent impression cylinder and transfer the freshly printed sheets to the next printing station via a transfer drum 40. The final printing station 28 herein is shown as equipped with a delivery cylinder 42 which functions to support the printed sheet 18 as it is moved from the final impression cylinder 36 by a delivery conveyor system, generally designated 44, to the sheet delivery stacker 20.

The delivery conveyor system 44 herein is of conventional design and includes a pair of endless delivery gripper chains 46, only one of which is shown in the drawings, carrying at regular spaced locations along the chains, laterally disposed gripper bars 48 having gripper elements 50 used to grip the leading edge of a sheet 18 after it leaves the nip between the delivery cylinder 42 and impression cylinder 36 of the last printing station 28. As the leading edge of the sheet 18 is gripped by the grippers 50, the delivery chains 46 pull the sheet away from the impression cylinder 36 and convey the freshly printed sheet to the sheet delivery stacker 20 where the grippers release the finally printed sheet. The endless delivery chains 46 are driven in synchronous timed relation to the impression cylinder 36 by sprocket

wheels 52 fixed adjacent the lateral ends of a delivery drive shaft 54 which has a mechanically geared coupling (not shown) through the press drive system to the impression cylinder. The delivery drive shaft 54 extends laterally between the sides of the press frame 14 adjacent the impression cylinder 36 of the last printing station 28, and is disposed to be parallel with the axis of the impression cylinder. In this instance, the delivery cylinder 42, which is constructed to allow adjustments in diameter by suitable means, is fixedly mounted to the delivery drive shaft 54 so that the delivery cylinder is also rotated in precise timed relation to the impression cylinder.

Preferably, each of the transfer cylinders 38 is equipped with an anti-marking system such as the aforementioned net type transfer cylinder system or the press 12 can be supplied in the transfer positions with vacuum transfer systems of the type disclosed in the above-identified copending U.S. application Ser. No. 07/630,308 filed Dec. 18, 1990, although as will become more apparent hereinafter, the use of such transfer systems is not required for the present invention and other types of transfer systems can be used. For reasons that will become more apparent hereinafter, for most effective use of the present invention, however, the delivery cylinder 42 should be of the type which employs the "SUPER BLUE" delivery cylinder system, or, as an alternative, should employ in the delivery position, a vacuum transfer system such as disclosed in the above-identified copending U.S. application Ser. No. 07/630,308.

In this respect, it is important to note that when the freshly printed sheets 18 are conveyed away from the impression cylinder 36 of the final printing station 28 by the gripper 50 carried by the delivery chains 46, the wet inked surfaces of the sheets face the delivery drive shaft 54 and the sheets must be supported such that the ink is not marked or smeared as the sheets are transferred. Typically, such support is provided by skeleton wheels or cylinders mounted to the press delivery drive shaft 54, or as is now more commonly used, net type delivery cylinders such as of the "SUPER BLUE" delivery cylinder system type disclosed in the aforementioned DeMoore patent. More recently, vacuum transfer apparatus of the type disclosed in the aforementioned copending U.S. application Ser. No. 07/630,308 have been used in place of delivery cylinders or skeleton wheels to pull the unprinted side of the sheet away from the delivery drive shaft 54 so that the wet ink surface of the sheets do not come into contact with any press apparatus. It has been found, however, that when a protective or decorative coating material is applied to the wet ink surface of the sheets, the coating protects the wet ink against marking and smearing such that the coating applicator roller itself can be used to support the wet inked surface of the sheets without fear of damage to the freshly printed surface.

In accordance with the present invention, the in-line coating apparatus 10 for selectively applying the protective or decorative coating to the sheets 18 enables the press 12 to be operated in the normal manner without the loss of the final printing station 28, and without requiring any substantial press modifications by employing the existing press delivery drive shaft 54 as the mounting location for the coating applicator roller. In presses 12 utilizing a net type delivery cylinder system, that system can be quickly and easily converted to perform the dual function of being a coating applicator roller and a delivery cylinder. In presses having other

types of delivery systems such as skeleton wheels mounted on the delivery drive shaft 54 or a vacuum transfer apparatus as disclosed in the aforementioned copending U.S. application Ser. No. 07/630,308, conversion to a coating operation can be quickly and easily achieved by mounting on the press delivery drive shaft in place of the skeleton wheels or in addition to the vacuum transfer apparatus, a suitable support cylinder capable of performing the combined function of a coating applicator roller and a delivery cylinder 42. Typically, such a support cylinder will have a diameter which provides no more than about a 0.090 inch clearance between the cylinder support surface and the adjacent impression cylinder 36. By utilizing the delivery cylinder 42 mounted on the delivery drive shaft 54 to also act as a coating applicator roller, the present invention insures that the coating will be applied to the printed sheet 18 in precise timed registration, and will permit the press to be operated with its full range of printing stations, yet allow fast, simple and convenient change-over from coating to noncoating operations, and vice versa, with a minimum of press down time.

Toward these ends, the coating apparatus 10 of the present invention includes a relatively simple, positive acting and economical coating unit, generally designated 60, mounted to the press frame 14 down stream of the delivery drive shaft 54 and positioned to selectively supply coating material to the support surface of a delivery cylinder 42 mounted on the delivery drive shaft. As best can be seen in FIGS. 2, 4 and 6, the coating unit 60 herein comprises a pair of side frames 62, only one of which is shown, it being understood that the other side frame is substantially the same as that of the side frame illustrated, attached to each side of the press frame 14. Pivotaly mounted to one end of each of the side frames 62 is a support bracket 64 carrying one end of a coating material reservoir 66 and cooperating coating material pick-up roller 68 each disposed to extend laterally across the press 12 parallel with the delivery drive shaft 54. The coating unit 60 is mounted between the upper and lower runs of the delivery chains 46 down stream of the delivery drive shaft 54, and positioned so that the outer peripheral surface 70 of the pick-up roller 68 can be frictionally engaged with the support surface of a delivery cylinder 42 mounted on the delivery drive shaft.

As best seen in FIGS. 2 through 4, the support bracket 64 is pivotally shakable to the end of the side frame 62 by a shaft 72 disposed at the lower end portion of the bracket, and can be pivoted about the shaft by an extensible cylinder 74, herein shown as a hydraulic cylinder, one end 76 of which is secured such as by welding to the side frame, and the opposite end 78 of which is coupled through a pivot shaft 79 to the upper end portion of the bracket. By extending or retracting the cylinder 74, the extent of frictional engagement of the pick-up roller 68 with the surface of the delivery cylinder 42 can be controlled, and the pick-up roller can be completely disengaged from the delivery cylinder.

The coating pick-up roller 68, which can be of conventional design and preferably one such as the Anilon rollers manufactured by A.R.C. International of Charlotte, N.C., and sold under the name "PRINTMASTER" having an engraved ceramic or chrome outer peripheral surface 70, is designed to pick up a predetermined uniform thickness of coating material from the reservoir 66, and then uniformly transfer the coating to the support surface of the delivery cylinder 42. To ef-

fect rotation of the pick-up roller 68, a suitable motor 80, herein a hydraulic motor, is attached to one of the side frames 62 and coupled to a suitable hydraulic fluid source (not shown) through fittings 81. Attached to the output of the motor 80 is an output gear which is drivingly coupled through a reduction gear 81 and a series of idler gears 82 each mounted on stub axles 84, to a drive gear 86 attached to the end of a shaft 88 on which the pick-up roller 68 is concentrically mounted. The shaft 88 of the pick-up roller 68 is, in turn, journaled at each end to the brackets 64 through a releasable semi-circular collar 90 (see FIG. 5) attached by bolts 92 to the bracket. Herein, the axle of the terminal idler gear, designated 87, also serves as the shaft 72 for pivotally mounting the support bracket 64 to the side frame 62 so that when the bracket is rotated about the shaft, the terminal idler gear remains engaged with the drive gear 86 of the pick-up roller 68.

In this instance, as best as can be seen in FIG. 6, the pick-up roller 68 has a portion which projects laterally into the reservoir 66 containing the supply of coating material, and a pair of upper and lower inclined doctor blades 94 and 96 attached to the reservoir engage the roller surface to meter the coating material picked up from the reservoir by the etched surface 70 of the roller. The reservoir 66 herein is formed by an elongated, generally rectangular housing 98 having a generally C-shaped cross-section with a laterally extending opening 100 along one side facing the pick-up roller 68, and is supplied with coating material from a supply tank 102 disposed in a remote location within or near the press 12. Preferably, the reservoir 66 is removably attached to the brackets 64, herein by bolts 104 having enlarged, knurled heads 106, and which can be threaded through slots 108 formed in the brackets to clamp the reservoir in place on the brackets.

To insure that an adequate supply of coating material is always present within the reservoir 66 and to prevent coagulation and clogging of the doctor blades 94 and 96 by the aqueous coating material, the coating material is circulated through the reservoir, herein by two substantially identical pumps 110 and 112, one of which pumps coating material from the supply tank 102 via a supply line 114 to the bottom of the reservoir, and the other of which acts to provide suction to a pair of return lines 116 coupled adjacent the top of the reservoir for withdrawing unused coating material from the reservoir. By circulating the coating material from the supply tank 102 at a greater rate than the rate of withdrawal of material by the pick-up roller 68, a substantially constant supply of coating material will always be present within the reservoir 66.

In this instance, the general arrangement of the pick-up roller 68, doctor blades 94 and 96, and reservoir 66 is substantially like that disclosed in U.S. Pat. No. 4,821,672 entitled DOCTOR BLADE ASSEMBLY WITH ROTARY END SEALS AND INTER-CHANGEABLE HEADS, the disclosure of which can be reviewed for details concerning the structure and operation of a pick-up roller and reservoir usable with the present invention.

Once the coating unit 60 has been installed in a press 12, which basically only requires that the side frames 62 be attached, such as with bolts, to the sides of the press frame 14, and the hydraulic motor 80 be coupled with a suitable hydraulic source, the press can be quickly and easily converted to the coating mode. In presses 12 already supplied with a set type delivery cylinder sys-

tem. to convert to a coating operation, all that is necessary is that the fabric net material (designated 122 in FIG. 3) normally used over the support surface of the net type delivery cylinder during noncoating press operations, be removed and replaced with a coating blanket 124 capable of transferring coating material deposited thereon onto the printed sheets. Typically, such a blanket 124 can be formed as a rubber covering such as used for the covering surface of the conventional blanket cylinders 34 of the press 12. In presses 12 having conventional skeleton wheels or a vacuum transfer type apparatus such as that of the aforementioned copending U.S. application Ser. No. 07/630,308, a suitable delivery cylinder 42 can be fixed to the delivery drive shaft 54 and a similar coating blanket 124 applied thereto over the cylinder surface.

It is important to note that during nonsprinting operations, the net type delivery cylinder 42 does not engage the surface of the impression cylinder 36 during sheet delivery. However, when used as a coating applicator roller during coating operations, the effective diameter of the delivery cylinder 42 must be increased so that the coating blanket 124 presses the sheet 18 against the surface of the impression cylinder 36, as shown in FIG. 2. To increase the effective diameter of the delivery cylinder 42, the thickness of the coating blanket 124 applied over the support surface of the delivery cylinder 42 can be selected to correspond with the thickness of the sheets 18 to be printed, or suitable packing sheets, such as paper sheets (not shown) of the type conventionally used in conjunction with press blanket cylinders 34, can be interposed between the delivery cylinder and the coating blanket.

While any suitable means can be used to attach the coating blanket 124 to the support surface of the delivery cylinder 42, in this instance, as shown in FIGS. 2 and 3, the delivery cylinder is supplied with clamps 126 attached by bolts 127 to the cylinder adjacent the leading edge 130 to secure the leading edge of the coating blanket 124 to the cylinder, and adjustable tensioning clamps 128 are provided adjacent the cylinder trailing edge 132 for securing the trailing edge of the blanket to the cylinder. However, the tensioning clamps 128 are pivotally mounted at one end by a pin 129 to the cylinder 42, and the blanket tension is adjusted through a bolt 131 and nut 133 arrangement. Depending upon the thickness of the sheets 18 to be printed and coated by the press 12, one or more layers of packing paper or the like may be interposed between the support surface of the delivery cylinder 42 and the coating blanket 124 to increase the effective diameter of the cylinder. Provision of the tensioning clamps 128 for attaching the coating blanket 124 to the leading edge 132 of the delivery cylinder 42 allows for such control and adjustment.

Once installed, the coating unit 60 can remain in position even though the press 12 is operated in the non-coating mode. In this respect, when the coating unit 60 is not in operation, the extensible cylinder 74 can be actuated to pivot the support brackets 64 carrying the pick-up roller 68 and reservoir 66 about the shaft 72 and away from the delivery cylinder 42, thus rendering the coating unit inoperative. This then also frees the pick-up roller 68 and reservoir 66 for fast and easy removal from the coating unit 60 for cleaning, service or replacement. To remove the pick-up roller 68, the coating material is drained from the reservoir 66, and the pressure exerted by the doctor blades 94 and 96 against the roller is released, therein through operation

of a pressure adjustment screw 120 attached to the reservoir, and the bolts 92 and collars 90 are removed, thereby permitting the pick-up roller to be lifted from the coating unit 60. To remove the reservoir 66, all that need be done is to release the mounting bolts 104 securing the reservoir to the brackets 64. With the coating unit 60 moved by the extensible cylinder 74 to the inoperative position, the delivery cylinder 42 can be converted for normal delivery cylinder operation simply by removing the coating blanket 124 from the delivery cylinder 42 and replacing the blanket with a fabric net 122. Alternatively, if a vacuum transfer apparatus such as described in the aforementioned copending U.S. application Ser. No. 07/630,308 is installed in the press 12, that apparatus can be activated to deliver sheets from the impression cylinder 36 without effecting any delivery cylinder change since the freshly printed side of the sheets will not come into contact with the delivery cylinder.

In a typical noncoating operation of the press 12 with the coating apparatus 10 installed, the coating unit 60 will be in the inoperative position. In that situation and with a net type delivery cylinder 42 installed, the delivery cylinder will be covered with the fabric net 122 so that the delivery cylinder operates in the normal manner with the wet ink side of the freshly printed sheets 18 being supported by the net covered surface of the delivery cylinder. Should the press 12 include a vacuum transfer apparatus such as disclosed in the aforementioned copending U.S. application Ser. No. 07/630,308, the delivery cylinder 42 can remain on the delivery drive shaft 54, with or without a fabric net 122, depending upon whether or not the press is used for perfecter printing.

When it is desired to convert to the coating mode of operation, the press 12 is stopped just long enough to replace the fabric net 122 on the delivery cylinder 42 with the coating blanket 124 packed to the required extent necessary for providing the proper pressure to effect coating of the sheet thickness to be printed. Thereafter, the pumps 110 and 112 are activated and the press 12 re-started. The extensible cylinder 74 can then be activated to control the pressure of the pick-up roller 68 against the delivery cylinder 42 to obtain the desired application of coating material to the freshly printed sheets 18.

Notably, with the coating apparatus 10 of the present invention, no timing adjustments between the delivery cylinder 42 and the impression cylinder 36 are required to achieve and maintain precise registration between application of the coating material and the printed surface of the sheets 18. Further, the coating unit 60 permits a wide range of coating weights to be applied to the printed sheets 18 by quickly and easily changing pick-up rollers 68 from those designed to produce a very light coating application to those designed to produce a very thick coating application can be used.

From the foregoing, it should be apparent that the coating apparatus 10 of the present invention provides a highly reliable, effective and economical in-line apparatus for selectively applying coating material to the freshly printed sheets 18 in a sheet-fed, offset rotary printing press 12 which allows the final printing station to continue to be used as a print station, yet which does not require any substantial press modification or the addition of a separate timed applicator roller. While a particular form of the present invention has been illustrated and described, it should be apparent that varia-

tions and modifications therein can be made without departing from the spirit and scope of the invention.

We claim:

1. In a sheet-fed, offset rotary printing press of the type including at least one printing station having a blanket cylinder and an impression cylinder disposed for printing ink onto sheets passing therebetween, and a delivery conveyor system for pulling freshly printed sheets from the impression cylinder and transporting the printed sheets toward a sheet delivery stacker, the delivery conveyor system including a delivery drive shaft disposed adjacent to and extending parallel with the impression cylinder and driven in timed synchronous relation with the impression cylinder, the improvement comprising:

a delivery cylinder mounted to said delivery drive shaft and having an outer peripheral support surface adapted to engage and support a sheet being transported by said delivery conveyor system;

a coating apparatus including a supply of liquid coating material, a rotatable pick-up roller having an outer peripheral surface of substantially cylindrical shape, and means for applying a coating of liquid coating material from said supply onto said outer peripheral surface of said pick-up roller; and

means for mounting said coating apparatus to the press adjacent said delivery cylinder including selectively operable means for moving said pick-up roller between a first operable position with a portion of said peripheral surface of said pick-up roller engaged with said support surface of said delivery cylinder, and a second inoperable position with said peripheral surface out of engagement with said support surface of said delivery cylinder, whereby when said pick-up roller is in said first operable position, liquid coating material from said supply applied onto said peripheral surface of said pick-up roller is transferred to said support surface of said delivery cylinder and to said freshly printed sheet.

2. The improvement as set forth in claim 1 wherein said delivery cylinder includes a coating blanket disposed over said peripheral support surface.

3. The improvement as set forth in claim 1 wherein said delivery cylinder includes a removable coating blanket disposed over said peripheral support surface when said pick-up roller is in said first operable position.

4. The improvement as set forth in claim 3 wherein said coating blanket has a rubber outer surface.

5. The improvement as set forth in claim 3 wherein said delivery cylinder includes a fabric net disposed over said peripheral support surface when said pick-up roller is in said first operable position.

6. The improvement as set forth in claim 1 wherein said coating apparatus includes an elongated reservoir containing said supply of liquid coating material, said reservoir being disposed to extend parallel with said pick-up roller with a portion of said peripheral surface extending into said reservoir in contact with liquid coating material contained therein, and at least one doctor blade attached to said reservoir and engaging said peripheral surface, said doctor blade acting to limit the amount of liquid coating material applied onto said peripheral surface from said reservoir.

7. The improvement as set forth in claim 6 wherein said reservoir and said pick-up roller are movably coupled to said press and said selectively operable means includes an extensible cylinder coupled between said reservoir and said press and operable to move said res-

ervoir and said pick-up roller between said first and second positions.

8. The improvement as set forth in claim 7 wherein said pick-up roller is rotatably driven by a motor attached to said coating apparatus.

9. The improvement as set forth in claim 8 wherein said delivery cylinder includes a rubber coating blanket disposed over said peripheral support surface when said pick-up roller is in said first operable position, and includes a fabric net disposed over said peripheral support surface when said pick-up roller is in said second inoperable position.

10. The improvement as set forth in claim 9 wherein said coating apparatus is mounted to said press downstream of said delivery drive shaft in the direction of travel of said sheets during transport by said delivery conveyor system.

11. The improvement as set forth in claim 1 wherein said mounting means includes first and second side frames mounted on said press, a support shaft mounted on and extending between said first and second side frames, a support bracket attached to said coating apparatus and movably coupled to said support shaft for pivotal movement between said first and second positions, and said selectively operable means includes an extensible cylinder coupled between said coating apparatus and said support bracket and operable to move said coating apparatus toward and away from said delivery cylinder.

12. In a sheet-fed, offset rotary printing press of the type including at least one printing station having a blanket cylinder and an impression cylinder disposed for printing wet ink onto sheets passing therebetween, and a delivery conveyor system for pulling freshly printed sheets from the impression cylinder and transporting the printed sheets toward a sheet delivery stacker, the delivery conveyor system comprising a pair of endless gripper chains disposed on opposite sides of the press and supporting therebetween gripper bars and grippers spaced along the chains, the gripper chains being driven in timed synchronous relation with the impression cylinder by laterally spaced sprocket wheels mounted on opposite ends of a delivery drive shaft disposed adjacent to and extending parallel with the impression cylinder, the improvement comprising:

a delivery cylinder mounted to said delivery drive shaft between said sprocket wheels and having an outer peripheral support surface covered by a removable coating blanket adapted to engage and support the wet ink side of a sheet being transported by said gripper bars;

a coating apparatus including a supply of liquid coating material, a rotatable pick-up roller having an outer peripheral surface of substantially cylindrical shape communicating with said supply, and means for applying liquid coating material from said supply onto said peripheral surface of said pick-up roller; and

means for mounting said coating apparatus to the press adjacent the delivery cylinder, said means including selectively operable means for moving said coating apparatus between a first operable position with a portion of said peripheral surface of said pick-up roller engaged with said delivery cylinder, and a second inoperable position with said peripheral surface of said pick-up roller out of engagement with said delivery cylinder, whereby when said coating apparatus is in said first operable

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position, liquid coating material from said supply metered onto said peripheral surface of said pick-up roller is transferred to said delivery cylinder and to said freshly printed sheet, and when said coating apparatus is in said second inoperable position, said delivery cylinder is disposed for non-coating sheet delivery operation.

13. The improvement as set forth in claim 12 wherein the effective diameter of said delivery cylinder covered by said coating blanket is sufficient to apply pressure to sheets against said impression cylinder as said sheets are pulled from said impression cylinder by said gripper bars.

14. The improvement as set forth in claim 13 wherein said coating blanket has a rubber outer support surface.

15. The improvement as set forth in claim 14 wherein said coating apparatus is disposed downstream of said delivery drive shaft in the direction of travel of said sheets during transport by said delivery conveyor system.

16. A sheet-fed, offset rotary printing press including: at least one printing station having a blanket cylinder and an impression cylinder disposed for printing wet ink onto sheets passing therebetween;

a delivery conveyor system for pulling freshly printed sheets from the impression cylinder and transporting the printed sheets toward a sheet delivery stacker, the delivery system including a delivery drive shaft;

a delivery cylinder mounted to said delivery drive shaft and having an outer peripheral support surface adapted to engage and support a sheet being transported by said delivery conveyor system;

a coating apparatus including a supply of liquid coating material, a rotatable pick-up roller having an outer peripheral surface of substantially cylindrical shape communicating with said supply, and means for applying liquid coating material from said supply onto said peripheral surface of said pick-up roller; and

means for mounting said coating apparatus to the press adjacent said delivery cylinder, said means including selectively operable means for moving said pick-up roller between a first operable position

14

with a portion of said peripheral surface of said pick-up roller engaged with said delivery cylinder, and a second inoperable position with said peripheral surface of said pick-up roller out of engagement with said delivery cylinder, whereby when said pick-up roller is in said first operable position, liquid coating material from said supply applied to said peripheral surface of said pick-up roller is transferred to said delivery cylinder and then to said freshly printed sheet.

17. A sheet-fed, offset rotary printing press as set forth in claim 16 wherein said delivery cylinder includes a removable coating blanket disposed over said peripheral support surface when said pick-up roller is in said first operable position.

18. A sheet-fed, offset rotary printing press as set forth in claim 17 wherein said coating blanket has a rubber outer surface.

19. A sheet-fed, offset rotary printing press as set forth in claim 17 wherein said delivery cylinder includes a fabric set disposed over said peripheral support surface when said pick-up roller is in said second inoperable position.

20. A sheet-fed, offset rotary printing press as set forth in claim 19 wherein said coating apparatus includes an elongated reservoir containing said supply of liquid coating material, said reservoir being disposed to extend parallel with said pick-up roller with a portion of said peripheral surface extending into said reservoir in contact with liquid coating material contained therein, and at least one doctor blade attached to said reservoir and engaging said peripheral surface, said doctor blade acting to limit the amount of liquid coating material applied onto said peripheral surface from said reservoir.

21. A sheet-fed, offset rotary printing press as set forth in claim 20 wherein said selectively operable means includes an extensible cylinder coupled between said reservoir and said press and operable to move said reservoir and said pick-up roller laterally between said first and second positions.

22. A sheet-fed, offset rotary printing press as set forth in claim 21 wherein said pick-up roller is rotatably driven by a motor attached to said coating apparatus.

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PROTECTIVE ORDER

W001031

TO THE SECRETARY

15

MEETING AT WILLIAMSON PRINTING CO. -- 2-11-95

PRESENT: JESSE WILLIAMSON, BILL DAVIS, HOWARD DeMOORE, STEVE GARNER, JOHN BIRD

DISCUSSION:

A. Press No. 3 -- Heidelberg Speedmaster CD 6 color + LYL.

Installation -- March 1 is target date for all components to be installed and ready for print testing. This includes ABII/CUV/HV. Testing for outward bound or inward bound position (outward bound preferred by all) to be established when tests run on Press No. 1 Heidelberg Speedmaster CD 7 color + L, Sunday 2-12-95. They wish to be constantly monitored during test phases and want John Bird to be present when possible. They require a man 24 hours a day when CD 6 color + LYL installation is complete. The last date possible for start-up of equipment on CD 6 color + LYL is March 15, although this will be a major problem for acceptance from Jesse Williamson. Greg Nyberg had provided a time line for CD 6 color + LYL which includes ABII/CUV only. We passed on info. to Bill Davis. It is critical for HV to be included in this time line schedule as soon as possible.

B. Press No. 3 -- Heidelberg Speedmaster CD 6 color + LYL.

We to manufacture an EZ blanket coater for operation at the first coating tower of the LYL. This coater must have an operating face width minimum of 40 inches. It will be acceptable to provide 38 inch face widths for coaters operational on printing units. This coater to be provided at no charge to WPC, whereas subsequent coaters will be priced out according to final design parameters. We should provide 200, 250 and 300 cell count laser engraved ceramic anilox rolls so as to determine the optimum type and/or types for the various applications. Satisfactory tests have been run in Germany using a 300 anilox where we at PRI have run a 200. Jesse indicates that he would like the EZ blanket coater for March 1, although Bill Davis indicates April 1 would be acceptable.

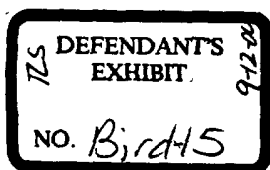
C. Web UV Coating Application.

World Wide Graphics will not supply a coater only and insist on Prime UV as UV supplier will not work with anyone else. We to contact Scheffer who make a web coater to see if we can work out an advantage for us to supply a web coater/dryer. The last delivery date of an accepted system will be June 15, 1995.

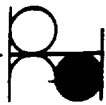
CIRCULATE: Howard DeMoore/Ed Schaffler/Dave Douglas/Howard Secor/Steve Garner/Steve Baker/Warren Bird/Greg Nyberg

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PRI 00134



[illegible]



Printing Research, Inc
10954 Shady Trall
Dallas, TX 75220 USA
214-353-8000

REVISION # 2.3.

Date of Demonstration

12.20/21.94

Today's Date Demo Date: 2nd Choice 3rd Choice

12.15.94 12.20/21.94

DEMONSTRATION INFORMATION

(To be completed by Sales Rep when arranging for demo)

CUSTOMER:

Equipment to be Demonstrated

Company: WILLIAMSON PRINTING CORP.

Contact: BILL DAVIS

Attendees: JESSE WILLIAMSON, BILL DAVIS, BOB ENRICK, JIM JOHNSON

Address: _____

City, State, Zip: DALLAS TX.

Phone: 214.904.2100

Fax: 214.

EZB	<input checked="" type="checkbox"/>
PBC	<input type="checkbox"/>
HV	<input type="checkbox"/>
BacVac	<input type="checkbox"/>
ABI	<input type="checkbox"/>
CUV	<input type="checkbox"/>
SB	<input type="checkbox"/>

PURPOSE: Goals and Objectives

What does the customer want to achieve?

APPLY METALLIC FLEXO TYPE INKS INCLUDING PEARLESCENTS, BETWEEN PRINTING UNITS AND OVERPRINT WITH REGULAR INKS ALL IN LINE.

PROCEDURE: To achieve Goals and Objectives

How?

APPLY WATER BASED SLURRIES AND INKS THROUGH THE EZB AT THE BLANKET POSITION PRIMARILY, AND EVENTUALLY FROM THE PLATE POSITION TO COMPARE. *SEE OVER.

EQUIPMENT AND MATERIALS:

All demonstrations are performed on the Heidelberg 1022P.

Materials	PRI Supplied	Customer Supplied	Manufacturer/ Product Type
Film:	<input type="checkbox"/>	<input type="checkbox"/>	
Plates:			
Litho	<input type="checkbox"/>	<input type="checkbox"/>	
Relief	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>REXHAM PLATES TO BE USED / CUSTOMER TO SUPPLY RELIEF PLATES FOR BLANKET AND PLATE POSITION.</u>
Coating: / INK.			
Aqueous	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>REXHAM PEARLESCENT / NPC - SLURRY, GOLD, SILVER, WHITE.</u>
UV	<input type="checkbox"/>	<input type="checkbox"/>	
Other (Explain)	<input type="checkbox"/>	<input type="checkbox"/>	
Ink:			
Litho	<input type="checkbox"/>	<input type="checkbox"/>	
UV	<input type="checkbox"/>	<input type="checkbox"/>	
Dampening Solution:	<input type="checkbox"/>	<input type="checkbox"/>	
Substrate:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			Size: _____ Weight: _____

See reverse side for results of demonstration and additional comments.

Distribution:

☐ Front Desk Calendar
☐ JB ☐ ES
☐ TB ☐ DD

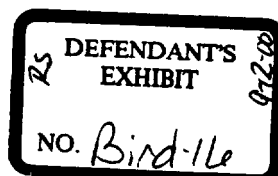
Sales Person

☐ SG ☐ AB ☐ WB
☐ MB ☐ LN

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PRI 00699

C:DCN1000/DEMONSTR



Sales Person S. BAKER.

3A

Results and Comments:

1. We to print/coat ~~white silver~~ and gold from the blanket position on various stock colors 100 of each. Using Rexham plate.
2. We to print/coat slurry on white stock from the blanket position. *
3. We to print/coat silver, gold, white from the blanket position using WPC supplied Cyrel 45thou and Dupont Polymer 67thou on various stock colors 100 of each. * $1 \times 1\frac{1}{2}$ ", $1\frac{1}{2} \times 1\frac{1}{2}$ ", 1×2 " and 2×2 ". To be cut from E-Z-Lac WR. GRACE 2 or 3 rectangles of each size. *

4. We to print/coat white from the plate position using WPC Cyrel 25thou on various stock colors.

- 12.20.94
1. Printed Gold on colored stock and white using Cyrel 45thou on colored stock (black) front edge skyped. Opacity good.
 2. Printed Gold on colored stock and white using Dupont Polymer 67thou front edge improved, if enough coating we could see edge probably would be resolved.
 3. Printed White, dried up on anilox 250 retarded with glycol. Single hit marginal we to run with coarser anilox.

- 12.21.94
1. We to print with banded 125/140/200/250 ~~distorted white~~ on colored stock. Upon selection of optimum anilox we will then run ~~white~~ and silver with 67thou image plate on colored stock. Same plate run white with optimum roller.
 2. Special Plates Slurry or white.



Printing Research, Inc
10954 Shady Trail
Dallas, TX 75220 USA
214-353-9000

Date of Demonstration

FEB. 13 - WEEK OF.

Today's Date Demo Date: 2nd Choice 3rd Choice

1/19/95 2/13-2/7

DEMONSTRATION INFORMATION

(To be completed by Sales Rep when arranging for demo)

CUSTOMER:

Equipment to be Demonstrated

Company: Williamson Printing Co.

Contact: Bill Davis

Attendees: Bill Davis

Address: 6700 Denton Drive

City, State, Zip: Dallas TX 75235

Phone: (214) 904-2160

Fax: _____

EZ B ☒

PBC ☐

HV ☐

BacVac ☐

AB I ☒

CUV ☐

SB ☐

PURPOSE: Goals and Objectives

What does the customer want to achieve?

Running new Silver Gold & White. Provided by Williamson at 15-20 sec. #3 Zahn (Drying Ability Retarded). PRI - To supply banded rubber anilox roll. Band range to be determined by D3 & Terry.

PROCEDURE: To achieve Goals and Objectives

How?

Plate and Blanket, Coating with existing relief plates. Flexo Printing.

EQUIPMENT AND MATERIALS:

All demonstrations are performed on the Heidelberg 102ZP.

Materials

PRI Supplied

Customer Supplied

Manufacturer/
Product Type

Film: ☐

☐

PRI to supply new banded rubber anilox roll.

Plates:

Litho ☐

☐

Relief ☒

☐

In-house - Dupont

Coating:

Aqueous ☐

☐

UV ☐

☐

Other (Explain) ☐

☐

Ink:

Litho ☐

☒

UV ☐

☐

Flexo (Water-based) Gold, Silver & White

Dampening Solution: ☐

☐

Substrate: ☒

☐

Size: _____

Weight: _____

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See reverse side for results of demonstration and additional comments.

Distribution:

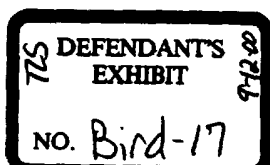
☐ Front Desk Calendar
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☐ TB ☐ DD

☐ Sales Person
☐ SG ☐ AB
☐ MB ☐ LN

☐ WB

PRI 00673

C:DCN1000/DEMONSTR



Sales Person

Steve Baker.

II

12

THE NEW YORK PUBLIC LIBRARY

18

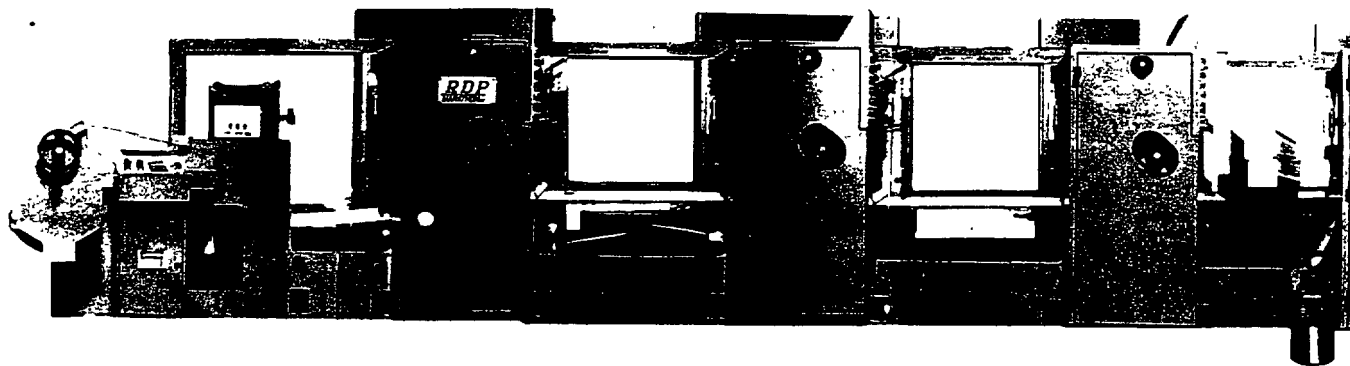
LF • 200

LITHO/FLEXO PRESS



FOR LABELS AND FOLDING CARTONS

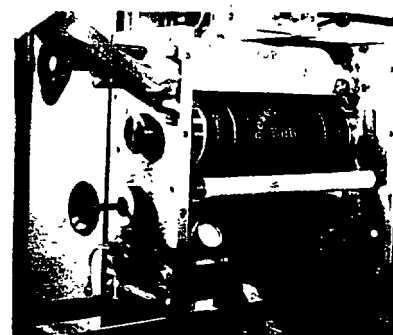
725 PLAINTIFF'S
EXHIBIT 725
NO. Bird-18



LF•200 LITH

The LF•200 litho/flexo combination press has been designed specifically to extend your reach into the label and folding carton market. Interchangeable web offset and flexo printing inserts—which change over in minutes without tools—provide the flexibility you need to keep production rates high. Cutoffs range from 14 to 28"/355 to 711mm, further increasing flexibility, and giving you the ability to bid on a wider range of work.

The LF•200 is available in configurations of up to 10 standard printing units with traditional finishing stations for punching, perforating, rewinding, sheeting, and folding. As a basic forms/label press, the LF•200 offers the best in narrow web offset technology. Add to this proven flexo capabilities, and you have a fast return on investment and a new capacity to compete!



Flexo Station

In a flexo configuration, the LF•200 will print on film, foil, paper, light paperboard, and pressure sensitive stock, while achieving the high quality your customers require. Standard finishing options include die cutting and UV or aqueous-based coating. Perforating and embossing stations are also available.

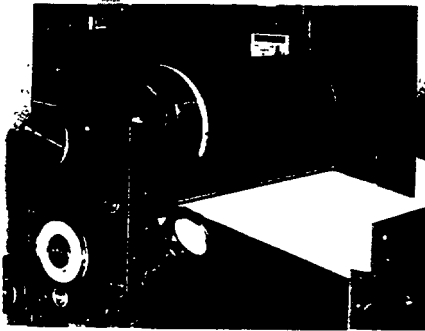
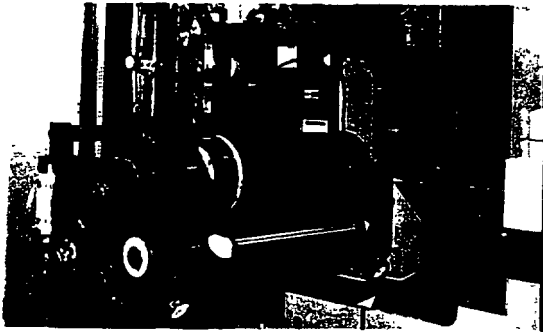
Changing over to flexo is fast, safe, and easy. No tools are required. Roll-out cartridge trolleys allow you to make ready or clean up off press for maximum efficiency.

The LF•200 also gives you the ability to switch between a conventional metering roll with reverse angle doctor blade and a fully enclosed doctor blade. Choose the

RDP
 MARATHON inc. RELIABLE DURABLE PRECISION



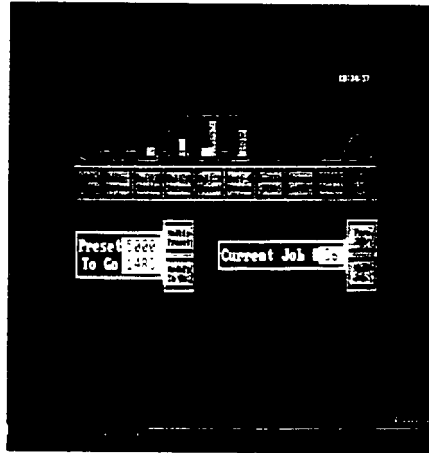
O/FLEXO CAPA



most appropriate technique for the job at hand. Rigid stops eliminate plate bounce up to 800 fpm/244 mpm. Both linear and lateral register can be adjusted while running.

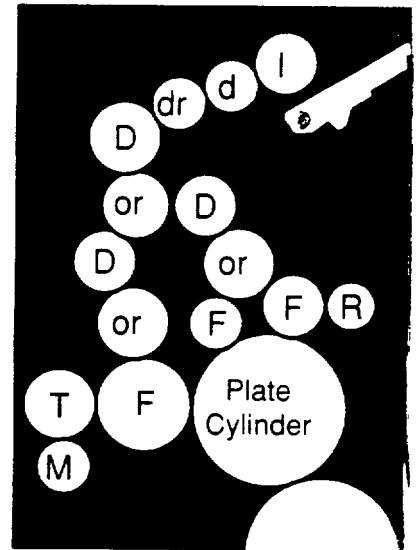
Flexo Station Specifications

Maximum web width	20.50" / 521mm
Side adjustment	0.25" / 6mm
Linear adjustment	360°
Plate repeat range	12-24" / 305-610mm
Anilox roll size (circ.)	17.00" / 432mm



Simple operation

Your operators need simple, time-saving controls. Our electronic control system features an easy-to-read, easy-to-use touchscreen graphic display and provides central control of virtually all press functions *plus* integration with management software. Set-up is faster, it's easier to monitor the run, and production stays on schedule—all observable from the front office. Open ended architecture means this control system won't become obsolete: it can be simply and economically upgraded at any time.

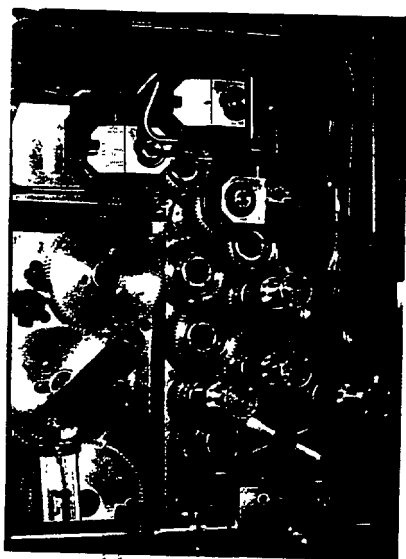


High Speed

The Maraflo™ 3-form inker with integrated dampener ensures high commercial quality at speeds up to 1000 fpm/300 mpm. High speed, combined with fast make-ready, makes the LF•200 extremely profitable on short and medium runs.

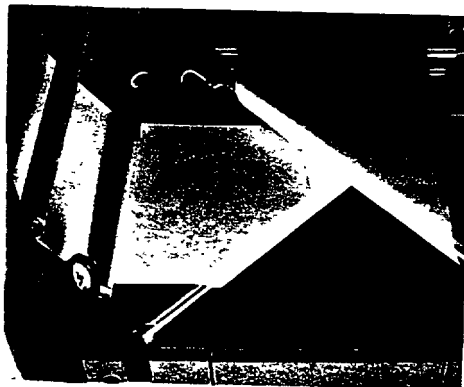


ABILITIES



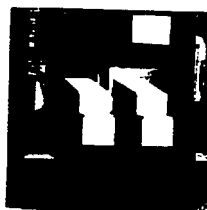
Rigid Construction

The LF•200 has been designed to run at maximum speed, shift after shift. Steel side frames ensure a stable press which contributes both to durability and to more accurate impressions. Meticulous machining of the AGMA 12 gear train contributes as well to reliable high performance. Listen to the LF•200 in operation—it doesn't roar; it whispers!



Optional Equipment

- Automated ink key control
- Centralized register control
- Reversible die cut station
- Web monitor
- Turn bars
- Spiral folder
- Sheeter
- UV curing system
- Waterless ready
- Ink agitators
- Ink levelers
- And much more...



EXC

Acrylic Latex
Grout Additive

Campbell's
FOOD SERVICE PACK

SAN PELLEGRINO S.P.A. - MILANO - ITALIA

PELLEGRINO

ACQUA MINERALE NATURALE FRIZZANTE

oetker

CRÈME CARAMEL

MÉLANGE
À DESSERT

CROSSE &
BLACKWELL

CHOCOLATE FLAVORED
NUT LOAF

Made With
Brazilian Cashews

105
3.70Z

Swiss®
Dark Chocolate

Lindt
CHOCO LETTI

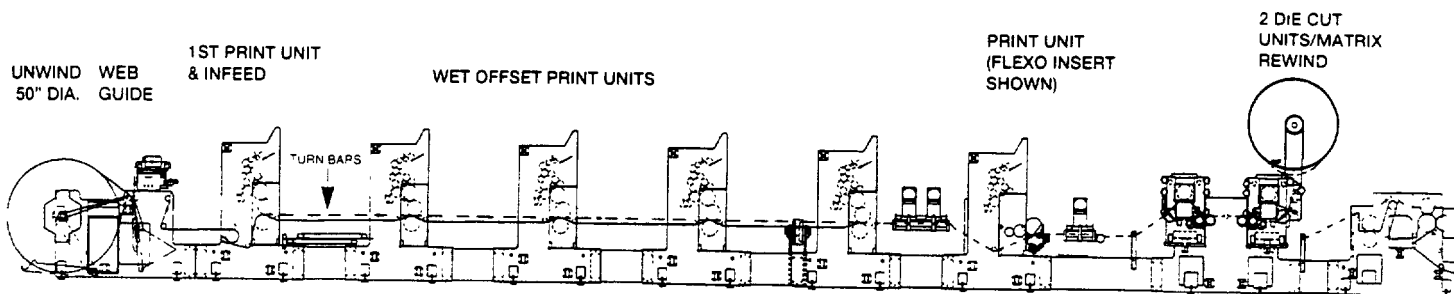
18 pieces with
Mint Cream Filling

NET WT 3.5 OZ 100 g

Chocolat
suisse noir

18 pièces fourrées
de crème à la menthe

Swiss® Dark Chocolate 18 pieces with Mint Cream Filling



General Specifications*

	Inches	mm
Maximum web width	20.50	521
Maximum print width	20.00	508
Side adjustment	0.25	6.0
Linear adjustment	360°	
Litho repeat range	14 to 28	355 to 711
Flexo repeat range	12 to 24	305 to 610

*Specifications are subject to change without notice.

Quality built for the long run from RDP Marathon Inc.

RDP Marathon specializes in technical and custom engineering dedicated to quality web printers. Our goal is to serve your needs in both traditional and innovative product areas. In response to the competitive challenges you face today—and will face in the future—our family of presses offers a wide range of capabilities supported by the creative thinking that enhances your productive capacity. The SR•200, the RDP•200, and RDP•300 series of presses provide printers with the ability to serve existing markets while exploring rapidly emerging value-added segments.

The standard of excellence established by engineering is maintained in the making of our presses, so that the high quality printer is assured of reliability, durability, and precision. We will settle for no less than your complete satisfaction with every RDP Marathon press—from customization, through installation, to after sale support.

RDP Marathon Inc.
2583 Chomedey Blvd., Laval (Montreal)
Quebec H7T 2R2 Canada
Phone: (514) 687-7262 Fax: (514) 687-2558



SPECIFICATION

accompanying

Application for Grant of U.S. Letters Patent

JOINT

INVENTORS: Ronald M. Rendleman
4331 Royal Ridge
Dallas, Texas 75229

Howard W. DeMoore
10954 Shady Trail
Dallas, Texas 75220

John W. Bird
1514 Iroquois Circle
Carrollton, Texas 75007

TITLE: "RETRACTABLE INKING/COATING APPARATUS HAVING FERRIS
MOVEMENT BETWEEN PRINTING UNITS"

Field of the Invention

1 This invention relates to sheet-fed or web-fed, rotary
2 offset or flexographic printing presses, and more particularly, to
3 a new and improved inking/coating apparatus for the in-line
4 application of printing inks or protective or decorative coatings
5 to sheets or web.

6 Background of the Invention

7 Conventional sheet-fed, rotary offset printing presses
8 typically include one or more printing units through which
9 individual sheets are fed and printed with wet ink. After the
10 last printing unit, the sheets are transferred by a delivery
11 conveyor to the delivery end of the press where the freshly
12 printed sheets are collected and stacked. In a typical sheet-fed,
13 rotary offset printing press such as the Heidelberg Speedmaster
14 line of presses, the delivery conveyor includes a pair of endless
15 gripper chains carrying gripper bars and gripper fingers which
16 grip and pull freshly printed sheets from the last impression
17 cylinder and convey the sheets to the sheet delivery stacker.

1 Since the inks used with rotary offset printing presses
2 typically remain wet and tacky for some time after printing,
3 special precautions must be taken to insure that the freshly
4 printed sheets are not marked or smeared as the sheets are
5 transferred from one printing unit to another, and while being
6 conveyed to the sheet delivery stacker. The printed surface of
7 the sheet dries relatively slowly and can be smeared during
8 subsequent transfer between printing units. In order to reduce
9 smearing and offsetting, spray powder is applied on the printed
10 sheet.

11 In some printing applications, offset and smearing are
12 prevented by applying a protective and/or decorative coating over
13 all or a portion of the freshly printed sheets. Some coating
14 solutions include varnish, lacquer, dye, moisturizers and ink.
15 Such coatings are formed of a UV-curable or water-dispersed resin
16 applied as a liquid solution or emulsion over the freshly printed
17 sheets to protect the ink and improve the appearance of the
18 freshly printed sheets. Such coatings are particularly desirable
19 when decorative or protective finishes are required such as in the
20 production of posters, record jackets, brochures, magazines,
21 folding cartons and the like. The coating is permeable to oxygen
22 to permit drying of the ink. In cases where a liquid coating is
23 to be applied, the coating operation is carried out after the last
24 color ink has been printed. In some cases, it is desirable to
25 spot coat from the printing plate. For both operations, the
26 coating is most desirably performed by an in-line coater.

27 In printing presses having flexographic printing plates,
28 an aqueous ink is used, for example metallic (gold) ink and opaque
29 white ink, both of which can be overprinted at the next printing
30 unit. An advantage of flexographic printing is that no dampening
31 unit is required. The flexographic printing plate has a raised
32 image surface (relief). Colors are stronger when flexographic
33 inks are used because they are not diluted by dampening solution.

RECEIVED SEP 11 1966

1 Description of the Prior Art

2 Various arrangements have been made for applying the
3 coating as an in-line printing operation by using the last
4 printing unit of the press as the coating application unit. For
5 example, in U.S. Patents 4,270,483, 4,685,414 and 4,779,557, there
6 are disclosed coating apparatus which can be moved into position
7 to allow the blanket cylinder of the last printing unit of a press
8 to be used to apply a coating material to the sheets. In U.S.
9 Patent 4,796,556 and U.S. Patent 4,841,903 there is disclosed a
10 coating apparatus which can be selectively moved between the
11 blanket cylinder or the plate cylinder of the last printing unit
12 of the press so that the last printing unit can only be used for
13 coating purposes. However, when coating apparatus of these types
14 are used, the last printing unit cannot be used to apply ink to
15 the sheets, but rather can only be used for the coating operation.
16 Thus, while coating with these types of in-line coating apparatus,
17 the press loses the capability of printing its full range of
18 colors since the last printing unit is converted to a coating
19 unit.

20 Proposals for overcoming the problem of the loss of a
21 printing unit when in-line coating is desired have also been made,
22 such as that set forth in U.S. Patent 4,934,305 which discloses a
23 coating apparatus having a separately timed applicator roller
24 positioned to apply the coating material to the freshly printed
25 sheet while the sheet is on the last impression cylinder of the
26 press. This is said to allow the last printing unit to print and
27 coat simultaneously, so that no loss of a printing unit capability
28 results. Another approach to providing a coating unit without
29 losing the printing capabilities of the last printing unit is to
30 provide a totally separate coating unit downstream of the last
31 printing unit so that the coating is applied to the sheets after
32 the last printing unit. Such an arrangement is disclosed in U.S.
33 Patents 4,399,767, 4,706,601 and 5,176,077.

34 In an effort to reduce costs and maintain flexibility in
35 adapting the printing press to different jobs, coating apparatus

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1 has been provided that can be selectively engaged with the plate
2 cylinder or blanket cylinder to carry out the coating operation,
3 and disengaged so that the last printing unit can be used for
4 offset printing when coating is not required. Examples of coaters
5 which are selectively engagable with either the plate cylinder or
6 the blanket cylinder are disclosed in U.S. Patent 4,615,293
7 (Jahn), U.S. Patent 5,107,790 (Sliker et al.) and U.S. Patent
8 4,841,903 (Bird).

9 The coater of U.S. Patent 4,615,293 includes two
10 applicator rollers, both disposed on the dampening side of the
11 plate cylinder and blanket cylinder for carrying out spot and
12 blanket coating operations as desired. The coater of U.S. Patent
13 5,107,790 is retractable along an inclined rail for extending and
14 retracting a coater head into engagement with either the plate
15 cylinder or the blanket cylinder. Because of its size, the
16 rail-retractable coater can only be installed between the last
17 printing unit of the press and the delivery stacker, and cannot be
18 used at interstation positions. The coaters of Patent 4,615,293
19 are located on the dampener side of the plate and blanket cylin-
20 ders, thus requiring removal of the dampening unit to make room
21 for the doctor blade head and applicator rollers. Consequently,
22 the last printing unit of the press is converted into a coating
23 unit, resulting in the loss of the printing capability of that
24 printing unit.

25 It will be appreciated that the time required to
26 reconfigure a press for coating or non-coating is non-productive
27 and costly. Accordingly, there is a need for a coating apparatus
28 which minimizes the time to clean-up from one printing run and set
29 up and run the next job. Where consecutive jobs require the same
30 type of coating, particularly blanket coating, it may not be
31 necessary to clean-up the coater between jobs. However, the
32 coating cannot be allowed to dry on the rollers. Therefore,
33 especially when switching from blanket to spot coating or vice
34 versa, or if there is a delay between jobs, it is necessary to
35 wash-up the coater after each job is completed.

1 In addition, wash-up is necessary when switching between
2 different coating compositions, such as aqueous and ultra violet
3 (UV) curable coatings. Such coatings are not interchangeable, and
4 the coaters must be washed between applications of the different
5 coating media. It is difficult to wash-up some coaters while the
6 press is running. Moreover, the retractable coaters mentioned
7 above occupy a large amount of press space and diminishes
8 accessibility to the press. Elaborate equipment is needed for
9 retracting the coater from the operative coating position to an
10 out-of-the-way, inoperative position which reduces access to the
11 printing unit.

12 A limitation on the use of flexographic printing plates
13 and aqueous printing inks is that the freshly printed or coated
14 sheets require hot air for drying. When applying an aqueous ink
15 such as opaque white or metallic gold, it is necessary to dry the
16 printed sheets between printing units before overprinting them.

17 Moreover, when utilizing lithographic printing inks, it
18 is necessary to frequently stop the press and wash the blanket.
19 Metallic ink in particular "piles" on the blanket and must be
20 washed frequently.

21 Objects of the Invention

22 Accordingly, the principal object of the present
23 invention is to provide improved inking/coating apparatus which is
24 capable of selectively applying ink or a coating material to a
25 plate on a plate cylinder or a coating material to a blanket on a
26 blanket cylinder of a printing press.

27 Another object of the present invention is to provide
28 inking/coating apparatus of the character described which is
29 extendable into inking/coating engagement with either a plate
30 cylinder or a blanket cylinder, and which is retractable to a non-
31 operative position to provide clear access to the cylinders of the
32 printing unit.

33 A related object of the present invention is to provide
34 inking/coating apparatus of the character described which is

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1 capable of being used in an interstation position and does not
2 interfere with access to the press.

3 Yet another object of the present invention is to
4 provide inking/coating apparatus of the character described, which
5 can be moved from an operative inking/coating engagement position
6 to a non-operative, retracted position.

7 Still another object of the present invention is to
8 provide inking/coating apparatus of the character described, which
9 can be used for applying aqueous inks and coatings to a litho-
10 graphic printing plate or a flexographic printing plate in a
11 rotary offset press.

12 A related object of the present invention is to provide
13 inking/coating apparatus of the character described, which is
14 capable of applying aqueous coating at one printing unit and
15 drying the coating before it reaches the next printing unit where
16 it can be overprinted with aqueous ink or lithographic ink.

17 Another object of the present invention is to provide
18 inking/coating apparatus for use on a multiple color rotary offset
19 printing press that can apply ink or coating to the plate or
20 blanket of a printing unit from a single applicator head.

21 A related object of the invention is to provide
22 inking/coating apparatus of the character described, in which no
23 printing unit adjustment or alteration is required when the
24 applicator head is converted from plate to blanket operation and
25 vice versa.

26 Summary of the Invention

27 The foregoing objects are achieved by a retractable, in-
28 line inking/coating apparatus which is mounted on a printing unit
29 tower for pivotal, Ferris wheel type movement between an operative
30 inking/coating position and a retracted, overhead position. The
31 inking/coating apparatus includes an applicator head which extends
32 into and retracts out of engagement with a plate on a plate
33 cylinder or a blanket on a blanket cylinder. The inking/coating
34 applicator head is positioned in parallel alignment with either

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1 the plate cylinder or the blanket cylinder by a carriage assembly
2 which includes a cantilever support arm. The support arm is
3 pivotally coupled between the inking/coating head and the printing
4 unit tower. This cantilevered, pivotal mounting arrangement
5 allows the inking/coating unit to be used between two printing
6 units, as well as installed on the last printing unit of the
7 press.

8 In the preferred embodiment, the applicator head
9 includes vertically spaced pairs of cradle members with one cradle
10 pair being adapted for supporting a metal or ceramic coating
11 roller in alignment with a blanket cylinder, and the other cradle
12 pair supporting a resilient anilox coating roller in alignment
13 with the plate cylinder, respectively, when the applicator head is
14 in the operative position. Because of the cantilevered, pivotal
15 support provided by the support arm, the applicator head can be
16 lifted and lowered through an arc, similar to Ferris wheel
17 movement, in the limited space between adjacent printing units.
18 When fully retracted, the coater and carriage assembly are lifted
19 to an overhead position overlying the printing unit tower, thus
20 providing complete access to the printing unit cylinders, without
21 causing the printing unit to lose its printing capability. The
22 inking/coating applicator roller can be inspected, cleaned or
23 replaced and the doctor blade assembly can be washed-up automati-
24 cally while the inking/coating apparatus is in the fully retracted
25 position.

26 When the inking/coating apparatus is used in combination
27 with a flexographic printing plate and aqueous ink or aqueous
28 coating, the water component of the aqueous ink or coating on the
29 freshly printed sheet is evaporated by a high velocity, hot air
30 interstation dryer and a high volume heat and moisture extractor
31 assembly so that the freshly printed ink or coating is completely
32 dry before the sheet is printed on the next printing unit. This
33 quick drying flexographic printing/coating arrangement permits a
34 base coat of ink, for example opaque white or metallic ink (gold,
35 silver or other metallics) to be applied in the first printing

1 unit, and then overprinted by the lithographic process on the next
2 printing unit.

3 Other features and advantages of the present invention
4 will become more apparent from the following detailed description
5 taken in conjunction with the accompanying drawings which
6 disclose, by way of example, the principles of the present
7 invention.

8 Brief Description of the Drawings

9 FIGURE 1 is a schematic side elevational view of a
10 sheet-fed, rotary offset printing press having inking/coating
11 apparatus embodying the present invention;

12 FIGURE 2 is a perspective view of the printing press of
13 FIGURE 1 in which a dual head inking/coating apparatus is in the
14 operative coating position and a single head coater is in a
15 retracted, overhead position;

16 FIGURE 3 is an enlarged simplified perspective view
17 showing one side of the single head inking/coating apparatus of
18 FIGURE 1 in the operative position;

19 FIGURE 4 is a simplified side elevational view showing
20 the dual head inking/coating apparatus in the operative coating
21 position for spot or overall coating from the blanket position;

22 FIGURE 5 is a simplified side elevational view showing
23 the single head inking/coating apparatus in the operative coating
24 position for spot or overall coating from the plate position; and,

25 FIGURE 6 is a simplified side elevational view of the
26 dual head inking/coating apparatus of FIGURE 4, partially broken
27 away, which illustrates the hydraulic drive assembly and doctor
28 blade assembly.

29 Detailed Description of the Preferred Embodiments

30 As used herein, the term "processed" refers to various
31 printing methods which may be applied to either side of a
32 substrate, including the application of UV-curable and aqueous
33 inks and/or coatings. The term "substrate" refers to sheet or web

1 material. Also, as used herein, the term "waterless printing
2 plate" refers to a printing plate having non-image surface areas
3 which are hydrophobic and also having image surface areas which
4 are hydrophilic, wherein the non-image surface areas are charac-
5 terized by a surface tension value which is less than the surface
6 tension of aqueous ink, and the image surface areas are character-
7 ized by a surface tension value which is greater than the surface
8 tension of aqueous ink. "Flexographic" refers to flexible
9 printing plates having a relief surface which is wettable by
10 aqueous ink or coating material.

11 As shown in the exemplary drawings, the present
12 invention is embodied in a new and improved in-line inking/coating
13 apparatus, herein generally designated 10, for use in applying
14 inks or protective and/or decorative coatings to sheets or webs
15 printed in a sheet-fed or web-fed, offset rotary or flexographic
16 printing press, herein generally designated 12. In this instance,
17 as shown in FIGURE 1, the inking/coating apparatus 10 is installed
18 in a four color printing press 12, such as that manufactured by
19 Heidelberger Druckmaschinen AG of the Federal Republic of Germany
20 under its designation Heidelberg Speedmaster 102V (40"). The
21 press 12 includes a press frame 14 coupled at one end, herein the
22 right end, to a sheet feeder 16 from which sheets, herein
23 designated S, are individually and sequentially fed into the
24 press, and at the opposite end, with a sheet delivery stacker 20
25 in which the freshly printed sheets are collected and stacked.
26 Interposed between the sheet feeder 16 and the sheet delivery
27 stacker 20 are four substantially identical sheet printing units
28 22, 24, 26 and 28 which can print different color inks onto the
29 sheets as they are transferred through the press 12. The printing
30 units are housed within printing towers T1, T2, T3 and T4 formed
31 by side frame members 14, 15.

32 As illustrated, the printing units 22, 24, 26 and 28 are
33 substantially identical and of conventional design. The first
34 printing unit 22 includes an in-feed transfer cylinder 30, a plate
35 cylinder 32, a blower cylinder 34 and an impression cylinder 36.

1 all supported for rotation in parallel alignment between the press
2 side frames 14, 15 which define printing unit towers T1, T2, T3
3 and T4. Each of the first three printing units 22, 24 and 26 have
4 a transfer cylinder 38 disposed to withdraw the freshly printed
5 sheets from the adjacent impression cylinder and transfer the
6 freshly printed sheets to the next printing unit via an inter-
7 station transfer cylinder 40. The last printing unit 28 is shown
8 equipped with a delivery cylinder 42 which supports the printed
9 sheet 18 as it is transferred from the last impression cylinder 36
10 to a delivery conveyor system, generally designated 44, to the
11 sheet delivery stacker 20.

12 The delivery conveyor system 44 as shown in FIGURE 2 is
13 of conventional design and includes a pair of endless delivery
14 gripper chains 46, only one of which is shown carrying at regular
15 spaced locations along the chains, laterally disposed gripper bars
16 having gripper fingers used to grip the leading edge of a freshly
17 printed sheet 18 after it leaves the nip between the delivery
18 cylinder 42 and impression cylinder 36 of the last printing unit
19 28. As the leading edge is gripped by the grippers, the delivery
20 chains 46 pull the sheet away from the impression cylinder 36 and
21 convey the freshly printed sheet to the sheet delivery stacker 20.

22 Prior to reaching the delivery sheet stacker, the
23 freshly printed and/or coated sheets S pass under a delivery dryer
24 48 which includes a combination of infra-red thermal radiation,
25 high velocity hot air flow and a high performance heat and
26 moisture extractor for drying the ink and/or the protec-
27 tive/decorative coating.

28 In the exemplary embodiment shown in FIGURE 1, the first
29 printing unit 22 is equipped with a flexographic printing plate,
30 and does not require an inking roller train or a dampening system.
31 If an ink roller train is mounted on the first printing unit, the
32 form rollers are retracted and locked off when the printing unit
33 goes on impression. Flexographic aqueous ink is supplied by the
34 inking/coating unit 110. The remaining printing units 24, 26 and
35 28 are equipped for lithographic printing and include an inking

1 apparatus 50 having an inking roller train 52 arranged to transfer
2 ink from an ink fountain 54 to the plate cylinder 32. This is
3 accomplished with the aid of a fountain roller 56 and a ductor
4 roller. The fountain roller 56 projects into the ink fountain 54,
5 whereupon its surface is wetted with ink. The printing ink Q is
6 transferred intermittently to the inking roller train 52 by the
7 ductor roller. The inking roller train 52 supplies ink Q to the
8 image areas of a printing plate P mounted on the plate cylinder 32.

9 The printing ink Q is transferred from the printing
10 plate P to an ink receptive blanket B which is mounted on the
11 blanket cylinder 34. The inked image carried on the blanket B is
12 transferred to a sheet S as the sheet is transferred through the
13 nip between the impression cylinder 36 and the blanket B.

14 The inking roller arrangement 52 illustrated in FIGURE
15 1 is exemplary for use in combination with lithographic ink
16 printing plates. It will be understood that dampening rollers
17 (not illustrated) will be in direct engagement with the litho-
18 graphic plate P, but are not used in combination with the
19 flexographic plate of printing unit 22.

20 Referring now to FIGURE 4, FIGURE 5 and FIGURE 6, the
21 in-line inking/coating apparatus 10 includes a carriage assembly
22 58 which supports an applicator head 60. The applicator head 60
23 includes a hydraulic motor 62, a lower gear train 64, an upper
24 gear train 65, an applicator roller 66 and a doctor blade assembly
25 68. The external peripheral surface of the applicator roller 66
26 is inserted into wetting contact with liquid coating material or
27 ink contained in a reservoir 70. The reservoir is continuously
28 supplied with ink or coating which is circulated through the
29 reservoir 70 from an off-press source by a pump (not illustrated).
30 The hydraulic motor 62 drives the applicator roller 66 synchro-
31 nously with the plate cylinder 32 and the blanket cylinder 34 in
32 response to an RPM control signal from the press drive (not
33 illustrated) and a feedback signal developed by a tachometer 72.
34 While a hydraulic drive motor is preferred, an electric drive
35 motor can be used.

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1 The fluid metering applicator 66 is preferably an anilox
2 roller which transfers measured amounts of printing ink or coating
3 material onto the printing plate or blanket. The surface of an
4 anilox roller is engraved with an array of closely spaced, shallow
5 depressions referred as "cells". Ink or coating from the
6 reservoir 70 flows into the cells as the anilox roller turns
7 through the reservoir. The transfer surface of the anilox roller
8 is scraped with a doctor blade 73 to remove excess ink or coating.
9 The ink or coating remaining on the anilox roller is that
10 contained within the cells.

11 The anilox roller 66 is cylindrical and may be con-
12 structed in various diameters and lengths, containing cells of
13 various sizes and shapes. The volumetric capacity of an anilox
14 roller is established during manufacturing and is dependent upon
15 the selection of cell size, shape and number of cells per unit
16 area. Depending upon the intended application, the cell pattern
17 may be fine (many small cells per square inch) or coarse (fewer
18 larger cells per square inch).

19 By applying the ink or coating through the inking/coat-
20 ing applicator 60, more ink or coating can be delivered to the
21 sheet S as compared with the inking roller train of a lithographic
22 printing unit. Moreover, color intensity is stronger and more
23 brilliant because the flexographic ink is applied at a much larger
24 film thickness than can be applied by the lithographic process and
25 is not diluted by dampening solution.

26 Preferably, the doctor blade assembly 68 is constructed
27 as described in U.S. Patent 5,176,077 (DeMoore), which is
28 incorporated herein by reference.

29 The applicator head 60 includes side frame members 74,
30 76 which support the applicator roller 66, gear train 64, gear
31 train 65, doctor blade assembly 68 and the drive motor 62. The
32 applicator roller 66 is supported at opposite ends on a lower
33 cradle formed by a pair of end plates 78, 80 which hold the
34 applicator roller 66 in parallel alignment with the blanket
35 cylinder 34 (FIGURE 5). The side frame 74, 76 are also provided

1 with an upper cradle formed by a pair of side plates 82, 84 which
2 are vertically spaced with respect to the lower side plates 78,
3 80. Each cradle has a pair of sockets 79, 81 and 83, 85,
4 respectively, for holding an applicator roller 66 for spot coating
5 or inking engagement against the plate P of the plate cylinder 32
6 (FIGURE 4) or the blanket B of the blanket cylinder 34.

7 Preferably, the applicator roller 66 for the upper
8 cradle (plate) position is an anilox roller having a resilient
9 transfer surface. In the dual cradle arrangement, the press
10 operator can quickly change over from blanket inking/coating and
11 plate inking/coating with minimum press down time, since it is
12 only necessary to remove and reposition or replace the applicator
13 roller 66, and wash-up the doctor blade assembly if changing from
14 ink to coating or vice versa. The capability to selectively
15 operate in either the flexographic mode or the lithographic mode
16 and to print or coat from either the plate or blanket position is
17 referred to herein as the "LITHOFLEX" process.

18 According to an important feature of the present
19 invention, the applicator head 60 is supported by the carriage
20 assembly 58 in a cantilevered, pivotal arrangement which allows
21 the dual cradle inking/coating apparatus 10 and single cradle
22 inking/coating apparatus 110 to be installed and used between any
23 two adjacent printing units, as well as installed on the first and
24 last printing units of the press. This is made possible by a pair
25 of cantilevered support arms 88, 90 which are pivotally coupled to
26 the side plates 74, 76, respectively, on a pivot shaft 77. Each
27 support arm has a hub portion 88A, 90A, respectively and an
28 elongated shank portion 88B, 90B, respectively. The elongated
29 shank portion extends transversely with respect to the shank
30 portion, and preferably extend perpendicularly with respect to
31 each other.

32 The cantilevered support arms are pivotally mounted on
33 the printing tower by pivot blocks 92, 94, respectively. The hub
34 portions 88A, 90A are journaled for rotation on pivot shafts 96,
35 98, respectively. The pivot blocks 92, 94 are securely fastened

1 to the tower 14D, so that the carriage assembly 86 is pivotally
2 suspended from the pivot shafts 96, 98 in a cantilevered Ferris
3 support arrangement. The shank portions 88B, 90B are pivotally
4 coupled to the pivot shaft 77, so that the carriage assembly 58
5 and the applicator head 60 are capable of independent rotation
6 with respect to each and with respect to the pivot shaft 77. By
7 this arrangement, the applicator head 60 is pivotally suspended
8 from the pivot shaft 77, and remains in an upright orientation as
9 the support arms rotate from the operative position to the fully
10 retracted position and vice versa.

11 Thus, the cradles 78, 80 and 82, 84 position the
12 applicator roller 66 in vertical and horizontal alignment with the
13 plate cylinder or blanket cylinder when the applicator head is
14 extended to the operative position. Moreover, because of the
15 transverse relationship between the hub portion and shank portion
16 of the support arms, the applicator head 60 and carriage assembly
17 58 are capable of rotating through a Ferris arc without touching
18 the adjacent tower. This makes it possible to install the
19 inking/coating apparatus 10 on any intermediate printing unit
20 tower (T2, T3), and as well as the first printing unit tower T1
21 and the last printing unit tower T4. Additionally, because of the
22 transverse relationship of the support arm hub portion and shank
23 portion, the lateral projection of the applicator head 60 into the
24 interstation space between printing units is minimized, thus
25 assuring virtually unrestricted operator access in the inter-
26 station space between adjacent printing units when the applicator
27 head is engaged in the operative position, and completely
28 unrestricted access when the applicator head is completely
29 retracted.

30 As shown in FIGURE 1 and FIGURE 2, rotation of the
31 carriage assembly 58 is counterclockwise from the retracted
32 position (shown in phantom) to the operative position. The
33 carriage assembly can be adapted for clockwise rotation from the
34 retracted position to the operative position for engagement of the
35 applicator roller to either the plate cylinder or the blanket

1 cylinder on the dampener side of the tower, assuming that access
2 to the plate and blanket is not restricted by dampener rollers or
3 the like.

4 Rotational movement of the support arms 88, 90 is
5 assisted by counterweights 100, 102 which are secured to the
6 support arms, respectively, for concurrent rotation with respect
7 to the pivot blocks 92, 94. With the passive assistance of the
8 counterweights, the press operator can easily move the ink-
9 ing/coating assembly 10 from the engaged operative position as
10 shown in FIGURE 4 to the fully retracted idle position as shown in
11 phantom in FIGURE 1. Preferably, rotation of the carriage
12 assembly 58 is assisted by power means such as a torsion spring,
13 electric motor, or hydraulic motor.

14 The inking/coating apparatus 10 is releasably locked
15 into the engaged position as shown in FIGURE 4 by releasable latch
16 couplings 103, 105 which secure the support arms 88, 90 to the
17 press side frames 14, 15, respectively, of the printing unit tower
18 T4 in the operative position. Coating engagement of the applica-
19 tor roller 66 against the blanket cylinder 34 is produced by power
20 actuators, preferably pneumatic cylinders 104, 106 which have
21 extendable/retractable power transfer arms 104A, 106A, respective-
22 ly. The pneumatic cylinder 104 is pivotally coupled to the
23 support arm 88 by a pivot linkage 108, and the second pneumatic
24 cylinder 106 is pivotally coupled to the support arm 90 by a pivot
25 linkage 109. In response to actuation of the pneumatic cylinders
26 104, 106, the power transfer arms are retracted. As the arms
27 retract, the inking/coating head 60 is rotated counterclockwise on
28 the pivot shaft 77, thus moving the applicator roller 66 into
29 coating engagement with the blanket cylinder 34.

30 The pivot linkage 108 includes a bell crank 111 which is
31 mounted for pivotal movement on a pin 113. The pin 113 is
32 supported by a clevis plate 115 which is attached to the support
33 arm 88. One end of the bell crank is pivotally coupled to the
34 actuator arm 104A, and a cam roller 117 is mounted for rotation on
35 its opposite end.

1 The cam roller 117 is engagable against an adjustable
2 stop 119 which is rigidly secured to the side plate 74. Counter-
3 clockwise shifting of the handle H moves a cam follower 121 into
4 a latch pocket 123 of a receiver block 125 as the cam roller 117
5 is moved into engagement with the adjustable stop 119 in the
6 interlocked, operative position. Referring to FIGURE 4, FIGURE 5
7 and FIGURE 6, the receiver block is rigidly secured to the
8 delivery side face of the printing unit tower by machine screws.

9 When the plate P goes on impression, power is applied to
10 the pneumatic actuator 104 and the power transfer arm 104A
11 retracts, thus causing the bell crank 111 to rotate counterclock-
12 wise about the pin 113. The torque applied by the actuator is
13 transmitted to the applicator head 60 through the cam roller 117
14 and the adjustable stop 119. Counterclockwise movement of the
15 applicator head 60 relative to the support shaft 77 carries the
16 applicator roller 66 into engagement with the plate P.

17 The adjustable stop 119 has a threaded bolt 119A which
18 is engagable with the cam roller 117. The striking point of
19 engagement is preset so that the applicator roller 66 is properly
20 positioned for engagement with the plate P or blanket B when the
21 applicator head 60 is interlocked with the press frame 14 and the
22 printing unit goes on impression.

23 Referring to FIGURE 5, an inking/coating apparatus 110
24 having a single head is illustrated. The construction of this
25 alternative embodiment is identical in all respects with the dual
26 head arrangement, with the exception that only a single gear train
27 and a single cradle for holding the applicator roller is provided.
28 In both embodiments, the inking/coating head 60 remains upright as
29 it swings through an arc, similar to the movement of a Ferris
30 wheel. Because of the upright orientation of the inking/coating
31 head 60 as it moves between the extended and retracted positions,
32 the usual platform spacing between printing unit towers provides
33 adequate clearance to permit extension and retraction of the
34 carriage assembly 58 without interference with operator access to
35 the printing units. This is a significant advantage in that it

1 permits the in-line inking/coating apparatus to operate effective-
2 ly in the interstation space between any adjacent printing units,
3 and without blocking or obstructing access to the cylinders of the
4 printing units when the inking/coating apparatus is in the fully
5 retracted position as indicated in FIGURE 1.

6 Moreover, when the in-line inking/coating apparatus is
7 in the fully retracted position, the applicator roller 66 is
8 conveniently positioned on the dampener side of the printing unit
9 for inspection, clean-up or removal. Additionally, the doctor
10 blade assembly is also conveniently positioned for inspection,
11 removal, adjustment or clean-up. The doctor blade reservoir and
12 coating circulation lines can also be cleaned while the printing
13 unit is running as well as when the press has been stopped for
14 change-over from one type of ink or coating to another.

15 When the inking/coating apparatus is used for applying
16 an aqueous ink or an aqueous coating material, the water component
17 on the freshly printed sheet S is evaporated by a high velocity,
18 hot air interstation dryer and high volume heat and moisture
19 extractor units 112 and 114, as shown in FIGURE 1, FIGURE 4 and
20 FIGURE 5. The dryer/extractor units 112 and 114 are oriented to
21 direct high velocity heated air onto the freshly printed/coated
22 sheet as it is transferred by the impression cylinder 36 and the
23 intermediate transfer cylinder 40. By this arrangement, the
24 freshly printed aqueous ink or coating is completely dry before
25 the sheet is overprinted in the next printing unit.

26 The high velocity, hot air dryer and high performance
27 heat and moisture extractor units 112, 114 utilize high velocity
28 air jets which scrub and break-up the moist air level which clings
29 to the surface of each freshly printed sheet. Within each dryer,
30 high velocity air is heated to a high temperature as it flows
31 across a resistance heating element within an air delivery baffle
32 tube. High velocity jets of hot air are discharged through
33 multiple airflow apertures through an exposure zone Z (FIGURE 4
34 and FIGURE 5) onto the freshly printed/coated sheet S as it is
35 transferred by the impression cylinder 36 and transfer cylinder

1 40, respectively. Each dryer assembly includes a pair of air
2 delivery dryer heads which are arranged in spaced, side-by-side
3 relation. The high velocity, hot air dryer and high performance
4 heat and moisture extractor units 112, 114 are preferably
5 constructed as disclosed in co-pending U.S. Patent Application
6 Serial No. 08/132,584, filed October 6, 1993, entitled "High
7 Velocity Hot Air Dryer", assigned to the assignee of the present
8 invention and which is incorporated herein by reference.

9 The high velocity, hot moisture-laden air displaced from
10 each printed sheet is extracted from the dryer exposure zone Z and
11 completely exhausted from the printing unit by the high volume
12 extractors. Each extractor head includes a manifold coupled to
13 the dryer heads and draws the moisture, volatiles and high
14 velocity hot air through a longitudinal gap between the dryer
15 heads. According to this arrangement, each printed sheet is dried
16 before it is run through the next printing unit.

17 The water-based inks used in flexographic printing dry
18 at a relatively moderate drying temperature provided by the
19 interstation high velocity hot air dryers/extractors 112, 114.
20 Because each freshly printed sheet is dried between each printing
21 unit, clarity and print quality are substantially improved since
22 the aqueous ink is dried at each printing unit before it enters
23 the next printing unit. Since the aqueous ink is dry before the
24 sheet enters the next printing unit, back-trapping on the blanket
25 of the next printing unit is completely eliminated. This
26 interstation drying arrangement makes it possible to print aqueous
27 inks such as metallic ink and opaque white ink at one printing
28 unit, and then overprint at the next printing unit.

29 Moreover, this arrangement permits the first printing
30 unit to be used as a coater in which an aqueous coating is applied
31 to low grade paper such as recycled paper to trap and seal in
32 lint, dust, spray powder and other debris and provide a smoother,
33 durable surface which is overprinted in the next printing unit.
34 An UV-curable coating can be applied over the first down over-
35 printed (aqueous) coating in the last printing unit. The first

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1 down layer seals the surface of the low grade, rough substrate and
2 improves overprinted dot definition while preventing strike-
3 through and show-through.

4 Preferably, the applicator roller 66 is either metal or
5 ceramic when it is used for applying a coating material to the
6 blanket B on the cylinder 34. When the applicator roller 66 is
7 applied to the plate, it is preferably constructed as an anilox
8 roller having a resilient transfer surface for engaging a
9 flexographic printing plate. Suitable resilient roller surface
10 materials include Buna N synthetic rubber and EPDM (terpolymer
11 elastomer).

12 It will be appreciated that the inking/coating apparatus
13 10 is capable of applying a wide range of ink types, including
14 fluorescent (Day Glo), pearlescent, metallics (gold, silver and
15 other metallics), glitter, scratch and sniff (micro-encapsulated
16 fragrance), scratch and reveal, luminous, pressure-sensitive
17 adhesives and the like.

18 The press operator can eliminate the dampener roller
19 assembly altogether, and the inking/coating apparatus 10 can
20 selectively apply aqueous inks and coatings to a flexographic or
21 waterless printing plate and the blanket. Moreover, overprinting
22 of the aqueous inks and coatings can be carried out in the next
23 printing unit since the aqueous inks and coatings are completely
24 dried by the high velocity, hot air interstation dryer and high
25 volume heat and moisture extractor assembly of the present
26 invention.

27 The aqueous inks and coatings as used in the present
28 invention contain colored pigments and/or soluble dyes, binders
29 which fix the pigments onto the surface of the printed sheet and
30 waxes, defoamers and thickeners. Aqueous printing inks predomi-
31 nantly contain water as a solvent, diluent and/or vehicle. The
32 thickeners which are preferred include algonates, starch,
33 cellulose and its derivatives, for example cellulose esters or
34 cellulose ethers and the like. Coloring agents including organic
35 as well as inorganic pigments may be derived from dyes which are

1 insoluble in water. Also, the printing ink may contain water and
2 may be predominantly glycol or the like, with the pigment being
3 bound by an appropriate resin. When metallic inks are printed,
4 the cells of the anilox roller must be appropriately sized to
5 prevent the metal particles from getting stuck within the cells.
6 The cell size is critical, and for metallic gold ink, the anilox
7 roller should have a screen line count in the range of 175-300
8 lines per inch.

9 The inking/coating apparatus 10 can also apply UV-
10 curable inks and coatings. If UV-curable inks and coatings are
11 utilized, ultra-violet dryers/extractors are installed adjacent
12 the high velocity hot air dryer/extractor units 112, 114,
13 respectively.

14 Moreover, by utilizing the coating apparatus on the
15 first printing unit, a seal coating can be applied to trap lint,
16 spray powder, dust and other debris, and cover defects on lower
17 grade paper which will improve print quality, which can then be
18 overprinted on the next in-line printing unit.

19 It will be appreciated that the "LITHOFLEX" system
20 described herein makes it possible to selectively operate a
21 printing unit in either the flexographic printing mode or the
22 lithographic printing mode, while also providing the capability to
23 print or coat from either the plate or blanket position. The dual
24 cradle support arrangement of the present invention makes it
25 possible to quickly change over from inking/coating at the blanket
26 cylinder position to inking/coating at the plate cylinder position
27 with minimum press down-time, since it is only necessary to remove
28 and reposition or replace the applicator roller 66 while the
29 printing/inking apparatus is in the retracted position.

30 Moreover, the press operator may elect to spot or
31 overall coat with aqueous ink/coating from the plate for one job,
32 and then spot and/or overall coat from the blanket during the next
33 job. Since the doctor blade assembly can be flushed and washed-up
34 quickly and the applicator roller can be changed out quickly, it
35 is possible to spot coat or overall coat from the plate position

1 or the blanket position with aqueous inks or coatings during the
2 first press run and then spot coat or overall coat with UV-curable
3 inks or coatings from the plate position or from the blanket
4 position during the next press run. The inking/coating apparatus
5 is completely out of the way in the retracted position; conse-
6 quently, the doctor blade reservoir and supply lines may be
7 flushed and washed-up by automatic wash-up equipment while the
8 printing unit is printing another job.

9 The positioning of the applicator head and roller
10 assembly relative to the plate and blanket is repeatable to a pre-
11 determined, preset impression position. Consequently, no printing
12 unit adjustment or alteration is required, except for flushing the
13 doctor blade assembly and cleaning or replacing the applicator
14 roller to accommodate a different kind of ink or coating.
15 Although manual extension and retraction have been described in
16 connection with the exemplary embodiment, extension to the
17 operative position and retraction to a non-operative position can
18 be carried out automatically by hydraulic or electric motor
19 servomechanisms.

20 The cantilevered, Ferris wheel support arrangement
21 allows the inking/coating apparatus to operate effectively in the
22 interstation space between any adjacent printing units, as well as
23 on the first or last printing units of the press, without blocking
24 or obstructing the interstation space or restricting operator
25 access to the cylinders of any of the printing units.

26 Finally, because the inking/coating apparatus of the
27 present invention is mounted on a printing unit tower and is
28 extendable to the operative position without requiring adjustment
29 or alteration of the printing unit cylinders, it can be used for
30 applying ink or coating to the blanket cylinder of a rotary offset
31 web press, or to the blanket of a dedicated coating unit.

32 Although the present invention and its advantages have
33 been described in detail, it should be understood that various
34 changes, substitutions and alterations may be made herein without

- 1 departing from the spirit and scope of the present invention as
- 2 defined by the appended claims.

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What is claimed is:

1 1. In a printing press of the type having side frame
2 members forming a printing unit tower on which a plate cylinder
3 and blanket cylinder are supported for rotation, the improvement
4 comprising:

5 inking/coating apparatus for applying ink or
6 coating material to a plate mounted on the plate cylinder or to a
7 blanket mounted on the blanket cylinder when the inking/coating
8 apparatus is in an operative position; and,

9 a carriage assembly including a support arm having
10 a first end portion pivotally coupled to the printing unit tower
11 and a second end portion pivotally coupled to the inking/coating
12 apparatus, the carriage assembly being movable to an operative
13 position in which the inking/coating apparatus is suspended
14 laterally adjacent to the plate and blanket cylinders, and being
15 movable to a retracted position in which the inking/coating
16 apparatus is elevated with respect to the plate and blanket
17 cylinders.

1 2. The invention as set forth in claim 1, wherein the
2 inking/coating apparatus comprises:

3 a doctor blade assembly having a reservoir for
4 receiving ink or liquid coating material;

5 an applicator roller coupled to the doctor blade
6 assembly in fluid communication with the reservoir, the applicator
7 roller being engagable with a printing plate on the plate cylinder
8 or with a blanket on the blanket cylinder when the inking/coating
9 apparatus is in the operative position.

1 3. The invention as set forth in claim 2, the
2 applicator roller comprising:

3 an anilox roller having a resilient transfer
4 surface.

4. The invention as set forth in claim 1, including a counterweight coupled to the support arm.

1 5. The invention as set forth in claim 1, further
2 comprising:

3 a power actuator pivotally coupled to the support
4 arm, the power actuator having a power transfer arm which is
5 extendable and retractable; and,

6 apparatus coupled to the power transfer arm for
7 converting extension or retraction movement of the power transfer
8 arm into pivotal movement of the inking/coating apparatus relative
9 to the support arm.

1 6. The invention as set forth in claim 5, in which the
2 movement converting apparatus comprises:

3 a bell crank plate having a first end portion
4 coupled to the power transfer arm and having a second end portion
5 for engaging a stop member;

6 a stop member secured to the inking/coating
7 apparatus; and,

8 a clevis plate secured to the support arm and
9 pivotally coupled to the bell crank plate.

1 7. The invention as set forth in claim 1, the
2 inking/coating apparatus comprising:

3 an applicator head having first and second side
4 frame members pivotally coupled to the carriage assembly;

5 a doctor blade assembly mounted between the first
6 and second side frame members, the doctor blade assembly including
7 a reservoir for receiving ink or liquid coating material;

8 cradle means mounted on the first and second side
9 frame members, respectively;

10 an applicator roller mounted for rotation on the
11 cradle means and coupled to the doctor blade assembly for rolling
12 contact with ink or coating material in the reservoir, the

13 applicator roller being engagable with a printing plate on the
14 plate cylinder or with a blanket on the blanket cylinder in the
15 operative position; and,

16 motor means coupled to the applicator roller for
17 rotating the applicator roller.

1 8. The invention as set forth in claim 7,
2 the cradle means including first and second sockets
3 disposed on the first and second side frame members respectively;
4 and,
5 the applicator roller being mounted for rotation on
6 the first and second sockets.

1 9. The invention as set forth in claim 7,
2 the cradle means including first and second sockets
3 disposed on the first and second side frame members, respectively,
4 and third and fourth sockets disposed on the first and second side
5 frame members, respectively;
6 the applicator roller being mountable for rotation
7 on the first and second sockets for applying ink or coating
8 material to the plate when the carriage assembly is in the
9 operative position; and,
10 the applicator roller being mountable for rotation
11 on the third and fourth sockets for applying ink or coating
12 material to the blanket when the carriage assembly is in the
13 operative position.

1 10. The invention as set forth in claim 1, comprising:
2 male and female latch coupling members mounted on
3 the carriage assembly and on the printing unit tower, respective-
4 ly, for releasably latching the carriage assembly in interlocking
5 engagement with the printing unit tower in the operative position.

1 11. The invention as set forth in claim 1, wherein the
2 support arm comprises an elongated shank portion and a hub portion

3 which extends transversely with respect to the shank portion, the
4 elongated shank portion being pivotally coupled to the ink-
5 ing/coating apparatus and the hub portion being pivotally coupled
6 to the printing unit tower.

1 12. A sheet-fed, rotary offset printing press compris-
2 ing, in combination:

3 at least one printing unit or dedicated coating
4 unit having side frame members forming a tower;

5 at least one cylinder mounted for rotation on the
6 tower for printing ink or coating material onto sheets passing
7 through the printing unit or dedicated coating unit;

8 inking/coating apparatus including a doctor blade
9 assembly having a reservoir for holding ink or coating liquid, a
10 rotatable applicator roller and means for applying ink or coating
11 liquid from the reservoir onto a peripheral surface portion of the
12 applicator roller; and,

13 support apparatus mounted on the printing unit
14 tower for pivotal movement, said support apparatus being movably
15 coupled to the inking/coating apparatus for supporting the
16 inking/coating apparatus for movement to an operative position in
17 which the applicator roller is engagable with a plate or a blanket
18 on the cylinder, and for movement to a retracted position in which
19 the inking/coating apparatus is supported at an elevated position
20 above the cylinder.

1 13. A rotary offset printing press comprising, in
2 combination:

3 a plate cylinder having a printing plate mounted
4 thereon;

5 a blanket cylinder having an ink receptive blanket
6 disposed in ink transfer engagement with the plate cylinder for
7 transferring ink from the image surface areas of the printing
8 plate to the ink receptive blanket;

9 an impression cylinder disposed adjacent the
10 blanket cylinder thereby defining a nip between the impression
11 cylinder and the blanket whereby the printing ink is transferred
12 from the blanket to a substrate as the substrate is transferred
13 through the nip;

14 inking/coating apparatus for applying ink or
15 coating material to the plate or to the blanket;

16 support apparatus mounted on the printing press for
17 pivotal movement, said support apparatus being movably coupled to
18 the coating apparatus for supporting the inking/coating apparatus
19 for movement to an operative position in which the inking/coating
20 apparatus is engagable with the plate or the blanket, and for
21 movement to a retracted position in which the inking/coating
22 apparatus is supported at an elevated position above the press;
23 and,

24 a dryer mounted on the press for discharging heated
25 air on the freshly printed substrate.

1 14. A rotary offset printing press as defined in claim
2 13, wherein:

3 the dryer is mounted adjacent the impression
4 cylinder for discharging heated air onto a freshly printed
5 substrate while the substrate is in contact with the impression
6 cylinder.

1 15. A rotary offset printing press as defined in claim
2 13, comprising:

3 an extractor coupled to the dryer for extracting
4 hot air, moisture and volatiles from an exposure zone between the
5 dryer and the freshly printed substrate.

1 16. A rotary offset printing press as defined in claim
2 13, comprising:

3 a transfer cylinder disposed in an interstation
4 position on the press and coupled in sheet transfer relation with
5 the impression cylinder; and,
6 an interstation dryer disposed adjacent the
7 transfer cylinder for discharging heated air onto a freshly
8 printed or coated substrate after it has been transferred from the
9 impression cylinder and while it is in contact with the inter-
10 mediate transfer cylinder.

1 17. In a printing press of the type having side frame
2 members forming a tower on which a blanket cylinder is supported
3 for rotation, the improvement comprising:
4 inking/coating apparatus for applying ink or
5 coating material to a blanket mounted on the blanket cylinder when
6 the inking/coating apparatus is in an operative position; and,
7 a carriage assembly movably coupled to the tower
8 and to the inking/coating apparatus for producing Ferris wheel
9 movement of the inking/coating apparatus to the operative position
10 in which the inking/coating apparatus is suspended laterally
11 adjacent to the blanket cylinder, and to a retracted position in
12 which the inking/coating apparatus is elevated with respect to the
13 blanket cylinder.

1 18. The invention as set forth in claim 17, wherein the
2 tower includes a plate cylinder and a plate mounted on the plate
3 cylinder, the inking/coating apparatus including:

4 first cradle means for supporting an applicator
5 roller for engagement against the plate when the inking/coating
6 apparatus is in the operative position; and,

7 second cradle means for supporting an applicator
8 roller for engagement against the blanket when the inking/coating
9 apparatus is in the operative position.

1 19. The invention as set forth in claim 17, comprising:
2 said carriage assembly including a support arm
3 having a first end portion pivotally coupled to the tower and
4 having a second end portion;
5 a common pivot shaft on which the support arm
6 second end portion and the inking/coating apparatus are pivotally
7 mounted; and,
8 male and female latch members coupled between the
9 common pivot shaft and the tower, with one of the latch members
10 being secured to the common pivot shaft and the other latch member
11 being secured to the tower, the latch members being mateable in
12 interlocking engagement when the inking/coating apparatus is in
13 the operative position.

1 20. The invention as set forth in claim 17, further
2 comprising:
3 a power actuator pivotally coupled to the support
4 arm, the power actuator having a power transfer arm which is
5 extendable and retractable; and,
6 apparatus coupled to the power transfer arm for
7 converting extension or retraction movement of the power transfer
8 arm into pivotal movement of the inking/coating apparatus relative
9 to the common pivot shaft.

1 21. The invention as set forth in claim 20, in which
2 the movement converting apparatus comprises:
3 a bell crank plate having a first end portion
4 coupled to the power transfer arm and having a second end portion
5 for engaging a stop member;
6 a stop member secured to the inking/coating
7 apparatus; and,
8 a clevis plate secured to the support arm and
9 pivotally coupled to the bell crank plate.

1 22. The invention as set forth in claim 1, wherein the
2 inking/coating apparatus comprises:

3 an applicator roller having a resilient transfer
4 surface.

1 23. The invention as set forth in claim 1, wherein the
2 applicator roller is mounted for engagement to a plate in the
3 plate cylinder position, the applicator roller comprising an
4 anilox roller having a resilient transfer surface.

1 24. A method for rotary offset printing in a rotary
2 offset press of the type including first and second printing
3 units, and using aqueous or UV-curable printing ink or coating
4 material in the operation of at least the first printing unit,
5 comprising the following steps performed at each printing unit in
6 succession:

7 spot or overall coating with aqueous ink/aqueous
8 coating or UV-curable ink/UV-curable coating from the plate;

9 spot and/or overall coating the blanket with
10 aqueous ink/aqueous coating or UV-curable ink or UV-curable
11 coating from the blanket;

12 transferring the printing ink or coating from the
13 printing plate to the blanket;

14 transferring the printed image from the blanket to
15 a substrate as the substrate is transferred through the nip
16 between an impression cylinder and the blanket; and,

17 drying the ink or coating on the freshly printed
18 substrate before the substrate is processed in the second printing
19 unit.

1 25. A method for rotary offset printing as defined in
2 claim 24,

3 wherein the drying step is performed by discharging
4 hot air onto the freshly printed/coated substrate after it has
5 been transferred from the first printing unit and while it is

6 contact with an intermediate transfer cylinder, but before it is
7 processed in the second printing unit.

1 26. A method for rotary offset printing as defined in
2 claim 24,

3 wherein the drying step is performed by directing
4 high velocity, heated air onto the freshly printed/coated
5 substrate while the freshly printed/coated substrate is in contact
6 with an impression cylinder.

1 27. A method for rotary offset printing as defined in
2 claim 24, including the steps:

3 transferring the freshly printed substrate to an
4 intermediate transfer cylinder; and,

5 drying the freshly printed substrate while it is in
6 contact with the intermediate transfer cylinder.

1 28. A method for rotary offset printing as defined in
2 claim 24, including the step:

3 extracting hot air, moisture and volatiles from an
4 exposure zone above the freshly printed/coated substrate while the
5 freshly printed/coated substrate is in contact with the impression
6 cylinder.

1 29. A method for rotary offset printing as defined in
2 claim 24, including the steps:

3 applying a primer coating of an aqueous coating
4 material or UV-curable coating material to a substrate in the
5 first printing unit;

6 trapping and sealing dust, lint, spray powder and
7 other debris under the primer coating; and,

8 drying the primer coating on the substrate before
9 the substrate is overprinted in the second printing unit.

1 30. A method for rotary offset printing in a rotary
2 offset press of the type including first and second printing
3 units, and using aqueous or UV-curable printing ink/coating
4 material in the operation of at least the first printing unit
5 comprising the following steps performed at each printing unit in
6 succession:

7 transferring the printing ink/coating material to
8 a printing plate at the first printing unit;

9 transferring the printing ink/coating material from
10 the printing plate to a blanket;

11 transferring the printed image from the blanket to
12 a substrate as the substrate is transferred through the nip
13 between an impression cylinder and the blanket; and,

14 drying the printing ink on the freshly printed
15 substrate before the substrate is processed in the second printing
16 unit.

1 31. A method for rotary offset printing as defined in
2 claim 30,

3 wherein the drying step is performed by discharging
4 hot air onto the freshly printed substrate after it has been
5 transferred from the first printing unit and while it is in
6 contact with an intermediate transfer cylinder, but before it is
7 processed in the second printing unit.

1 32. A method for rotary offset printing as defined in
2 claim 30, wherein the drying step is performed by directing high
3 velocity, heated air onto the freshly printed substrate while the
4 freshly printed substrate is in contact with the impression
5 cylinder.

1 33. A method for rotary offset printing as defined in
2 claim 30, including the steps:

3 transferring the freshly printed substrate to an
4 intermediate transfer cylinder; and,

5 drying the freshly printed substrate while it is in
6 contact with the intermediate transfer cylinder.

1 34. A method for rotary offset printing as defined in
2 claim 30, including the step:
3 extracting hot air, moisture and volatiles from an
4 exposure zone above the substrate while the substrate is in
5 contact with the impression cylinder.

2025 RELEASE UNDER E.O. 14176

**"RETRACTABLE INKING/COATING APPARATUS
HAVING FERRIS MOVEMENT BETWEEN PRINTING UNITS"**

Abstract of the Disclosure

1 A retractable in-line inking/coating apparatus selec-
2 tively applies either spot or overall ink/coating to a blanket or
3 flexographic plate on a blanket cylinder or spot coating or
4 overall ink/coating to a flexographic printing plate on a plate
5 cylinder in a rotary offset printing press. The inking/coating
6 apparatus is pivotally mounted on the tower of a printing unit or
7 dedicated coating unit, and is extended into and retracted out of
8 inking/coating engagement by a carriage assembly which is
9 pivotally coupled to the printing unit tower. Because of the
10 pivotal support provided by a cantilevered support arm, the
11 inking/coating apparatus can be raised and lowered through a
12 Ferris wheel arc movement between adjacent printing units. The
13 aqueous component of the printing ink or coating is evaporated by
14 a high velocity, hot air interstation dryer and a high performance
15 heat and moisture extractor so that the ink on a freshly printed
16 sheet is dry before the sheet is printed on the next printing
17 unit. Thus, flexographic ink or coating applied at the first
18 printing unit can immediately be overprinted on subsequent
19 printing units.

* * * * *

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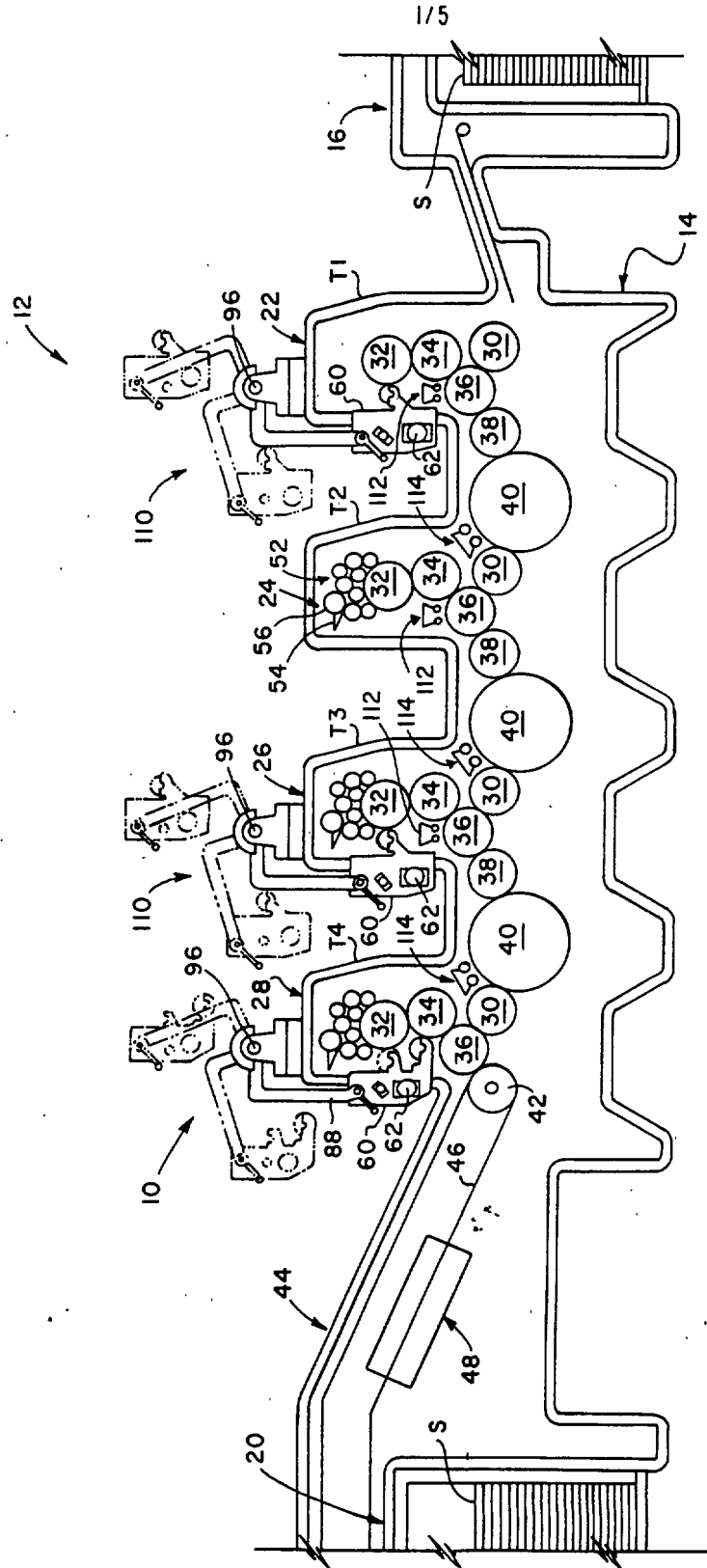
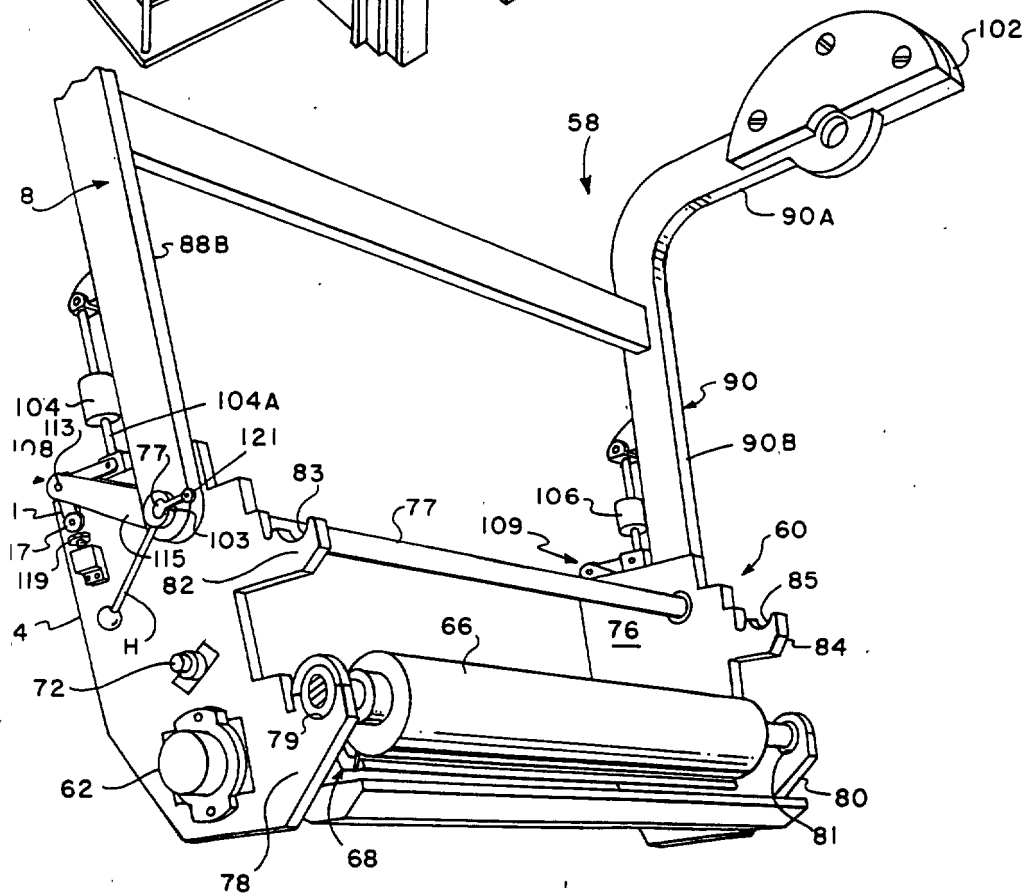
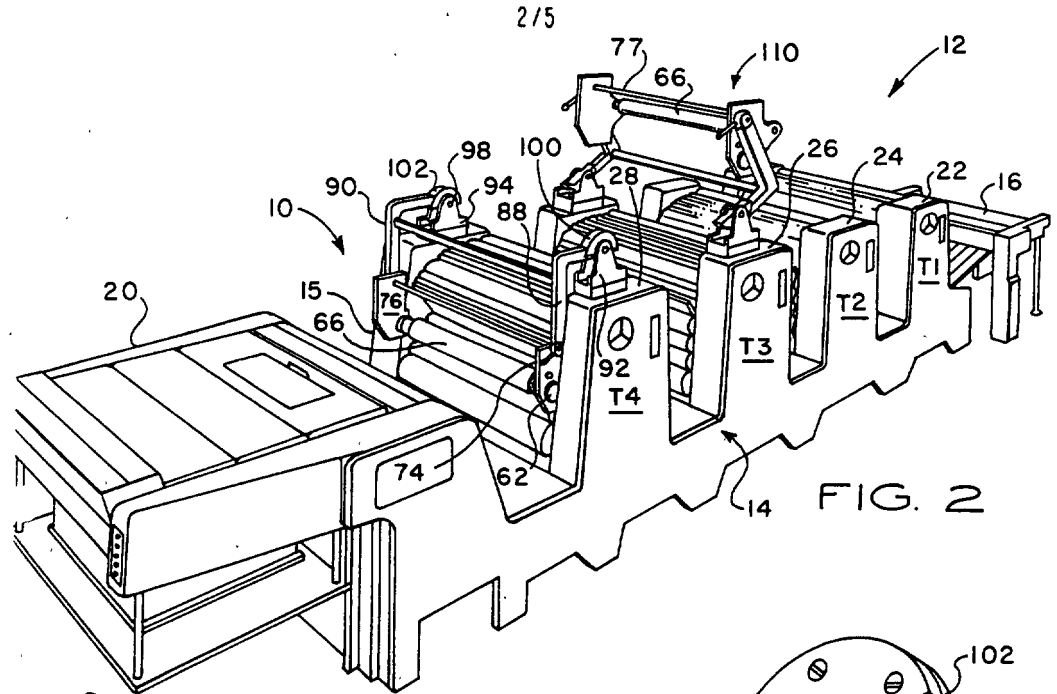


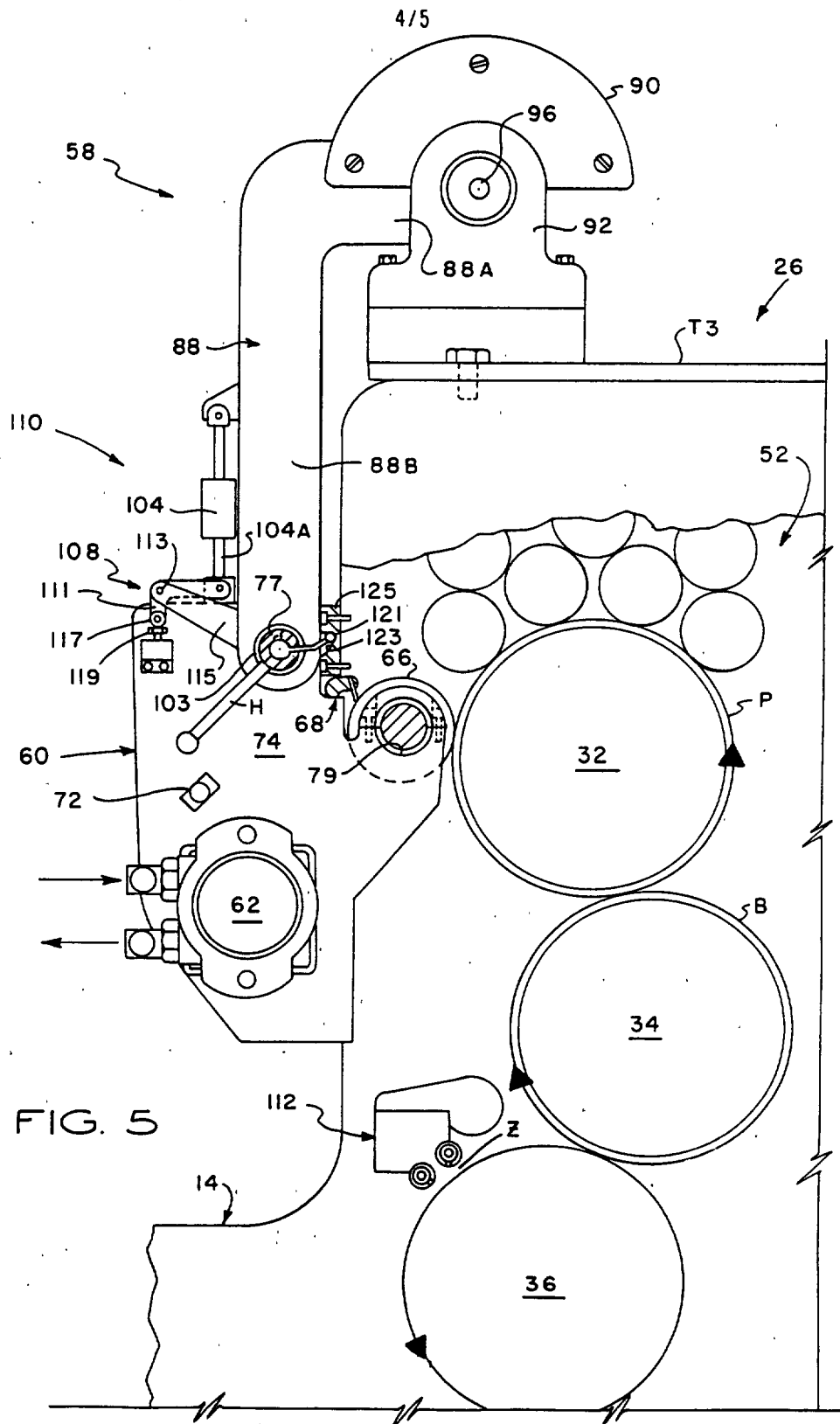
FIG. 1

B6012
 RONALD M. RENDLEMAN
 HOWARD W. DEMOORE
 JOHN W. BIRD



3/5





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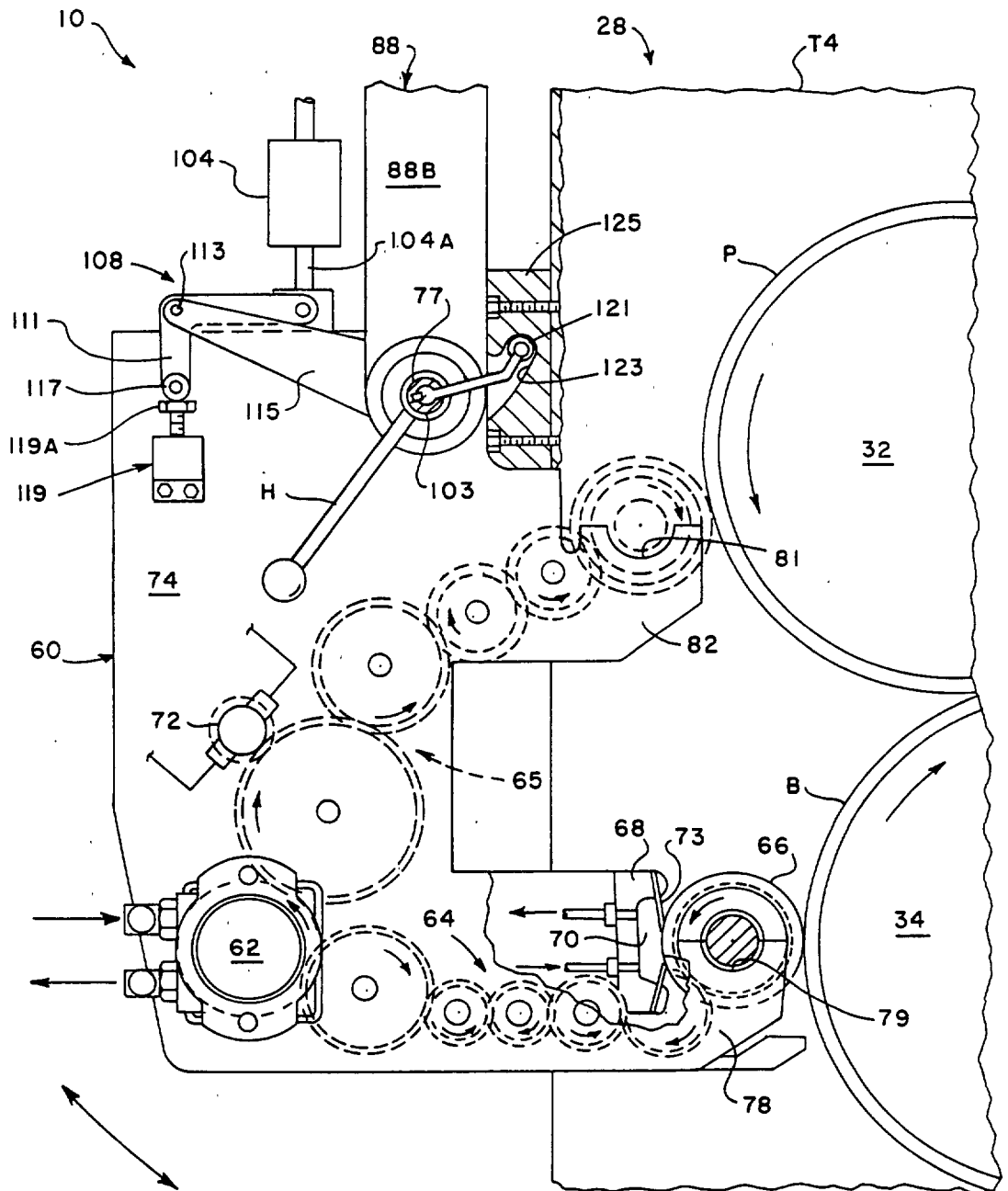


FIG. 6

Reissue of U. S. Patent No. 5,630,363

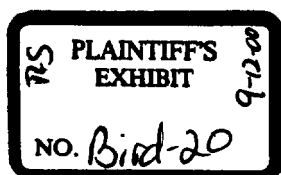
CLAIMS

Note: Bracketed material in the following claims has been deleted from U. S. Patent 5,630,363 as issued; underlined materials, including new claims 42-84 has been added.

1. Apparatus for a combined lithographic/flexographic printing process comprising:
 - a substrate;
 - a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;
 - one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;
 - at least one of said successive printing stations being a lithographic printing station; and
 - an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.
2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.
3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.
4. Apparatus as in claim 1 wherein:
 - said substrate is a paper sheet; and

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said apparatus includes a sheet feeder

5. Apparatus as in claim 1 wherein:

said substrate is a web; and

said apparatus includes a web feeder

6. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating;

a suspended metallic material being included in said aqueous-based vehicle image; and

at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression

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cylinder for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and

at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:

said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and

said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

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a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

at least two successive ones of said printing stations being flexography stations and comprising:

- (1) a supply of liquid coating;
- (2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;
- (3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;
- (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and

at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

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a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:

a plate cylinder at said at least first one of said flexographic stations;

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an

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image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

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24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images [on top of] over said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

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31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

34. A method as in claim 29 further including the steps of:

printing a slurry on said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an overcoating [over] on top of said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and

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printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

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(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

42. The apparatus of any of claims 1, 6, 10, 12, 15 and 17, wherein the substrate is printed on both sides in one pass during the continuous in-line process.

43. The method of any of claims 29, 37, 38 or 39 wherein the substrate is printed on both sides in one pass during the continuous in-line process.

44. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of thin, controlled layers on one side of a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate using a flexographic process; and

at least one of said successive printing stations being a lithographic printing station;

whereby said substrate is printed on top of or on the opposite side of that previously printed at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

45. Apparatus as in claim 44 wherein at least one of said thin, controlled layers at the flexographic station is a coating material.

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46. Apparatus as in claim 44 wherein at least one of said thin, controlled layers at one of the lithographic stations is an ink.

47. Apparatus as in claim 44 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder.

48. Apparatus as in claim 44 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

49. The apparatus of claim 44 for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle on one side of the substrate using the flexographic process to form a metallic coating image;

a suspended metallic material being included in said aqueous-based vehicle; and

at least one of the successive printing stations comprising an offset lithographic printing station printing a color image on top of the aqueous-based vehicle or on the opposite side to that previously printed using the offset lithographic process in said continuous in-line process.

50. Apparatus as in claim 49 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

51. Apparatus as in claim 49 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

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52. Apparatus as in claim 49 further including:
said flexographic printing station including a plate cylinder
having a flexographic plate thereon, a blanket cylinder, and
an impression cylinder;

a flexographic plate image transferred from said
plate cylinder to said blanket cylinder, said image being
formed of said metallic coating, said blanket cylinder
transferring said metallic coating to said impression
cylinder for printing said flexographic plate image on said
substrate; and

an anilox roller associated with said flexographic
plate for supplying said aqueous-based vehicle containing
said suspended metallic material to said flexographic plate.

53. Apparatus for creating a combined
lithographic/flexographic printing process comprising:

a plurality of successive printing stations for
depositing a series of thin, controlled layers on a substrate
in a continuous in-line process;

one of said stations comprising a flexographic
printing station for printing a first color image using the
flexographic process; and

at least one of the other successive printing stations
comprising an offset lithographic printing station for
printing a second color image on the reverse side of the
substrate of the first color image using the offset
lithographic process in said continuous in-line process.

54. Apparatus as in claim 53 further including:

said flexographic printing station including a plate
cylinder, a blanket cylinder, and an impression cylinder;

a flexographic plate on said plate cylinder;

an anilox roller associated with said flexographic
plate for supplying a first color to said flexographic plate to
form said first color image; and

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said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

55. Apparatus for creating a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process;

at least one of said printing stations being flexographic stations and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;

(4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on one side of said substrate; and

at least one offset lithographic printing station for receiving said substrate and printing on top of or on the opposite side to that previously printed.

56. Apparatus as in claim 55 wherein said liquid coating image printed on said substrate is a white color ink.

57. Apparatus as in claim 56 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

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58. Apparatus for a combined lithographic/ flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process, said printing stations including both lithographic and at least two flexographic printing stations,

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means at the other of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image on one side of a substrate;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image or the opposite side to that previously printed using offset lithography.

59. Apparatus as in claim 58 further comprising:

a plate cylinder at said at least first one of said flexographic stations;

a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and

said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

60. Apparatus for a combined lithographic/ flexographic printing process for printing a multicolored image comprising:

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a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;

(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to one side of said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image or on the opposite side to that that previously printed.

61. Apparatus as in claim 60 wherein said additional colored ink images are formed with lithographic inks.

62. Apparatus as in claim 60 wherein said colored ink images are formed with waterless inks.

63. Apparatus as in claim 60 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

64. Apparatus as in claim 60 further including halftone printing plates for printing said colored ink images.

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65. Apparatus as in claim 60 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

66. Apparatus as in claim 60 wherein said printing apparatus includes a sheet-fed press.

67. Apparatus as in claim 60 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

68. Apparatus as in claim 60 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

69. Apparatus as in claim 68 wherein said suspended particles are uniform in size.

70. Apparatus as in claim 68 wherein said suspended particles are nonuniform in size.

71. Apparatus as in claim 68 wherein said suspended particles are metallic particles.

72. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for depositing a series of thin, controlled layers on a substrate;

printing an image as one of said thin controlled layers on one side of said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

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printing an image on the reverse side of said substrate having said flexographic ink image, at at least one of said other subsequent lithographic printing stations with an offset lithographic process in the continuous in-line process.

73. A method as in claim 72 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

74. A method as in claim 72 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

75. A method as in claim 72 wherein said colored inks forming said colored ink images are waterless.

76. A method as in claim 72 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

77. A method as in claim 72 further including the steps of:

printing a slurry on one side of said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an ink on the reverse side of said substrate at a subsequent printing station in said in-line process.

78. A method as in claim 77 further including the step of printing an aqueous-based coating over said slurry.

79. A method as in claim 77 further including the step of printing an ultraviolet coating over said slurry.

80. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

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applying an ink or coating to a blanket cylinder in a pattern with a coating head at a flexographic printing station;

transferring said pattern of ink or coating from said blanket cylinder to one side of the substrate; and

printing a waterless ink pattern on the reverse side of said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

81. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle having suspended particles therein on one side of a substrate at a flexographic printing station to form an image;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional images on the reverse side of said printed substrate in an offset lithographic process at said at least one additional printing station in said in-line process.

82. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for depositing a series of thin, controlled layers on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as one of said thin controlled layers to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to one side of a substrate;

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(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on the one side of said substrate; and

(6) printing an ink pattern on the reverse side of said substrate using an offset lithographic process.

83. A method as in claim 82 further including the step of additionally printing ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

84. A method as in claim 83 wherein said liquid ink is an opaque white color.

85. A method of combining offset lithography and flexography using a plurality of successive printing stations in a continuous in-line process comprising:

(1) printing an image at one or more of said printing stations on a substrate using an offset lithographic process;

(2) transferring said image printed substrate to an additional printing station and printing at said additional printing station a coating on all or part of said image on said substrate;

(3) transferring said substrate to one or more additional printing stations for printing the reverse side of the said substrate; and

(4) printing an image on said reverse side of said substrate at one of such one or more printing stations using an offset lithographic process in the continuous in-line process.

86. Apparatus for a combined offset lithographic and flexographic printing process comprising:

(1) a substrate;

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(2) a plurality of successive printing stations for depositing a series of thin layers of materials selected from a group consisting of lithographic and flexographic inks, coatings and slurries on one or both sides of a substrate in a continuous in-line process;

(3) at least one of said stations comprising a flexographic printing station for printing one of said flexographic materials on said substrate using a flexographic process;

(4) at least one of said successive printing stations being an offset lithographic printing station whereby said offset lithographic printing station is used to deposit one of said lithographic materials on either side of the said substrate in the continuous in-line process;

87. Apparatus for a combined offset lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing images on a substrate in a continuous in-line process, said printing stations including both offset lithographic and flexographic printing stations for depositing lithographic and flexographic inks, coatings and slurries on said substrate, whereby said lithographic and flexographic inks, coatings or slurries may be printed successively on one or both sides of said substrate in the continuous in-line process.

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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

PRINTING RESEARCH, INC.
and HOWARD W. DEMOORE,

Plaintiffs,

v.

WILLIAMSON PRINTING
CORPORATION, BILL L. DAVIS and
JESSE S. WILLIAMSON,

Defendants.

CIVIL ACTION NO. 3-99CV1154-M

DEFENDANTS' INITIAL DESIGNATION OF EXPERTS

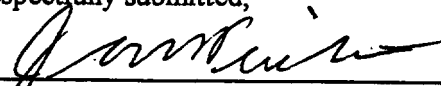
Pursuant to paragraph 5 of the Amended Scheduling Order and Rule 26(a)(2), Fed. R. Civ.

P., Defendants designate the following expert witness who will testify at trial:

Bernarr R. Pravel, Esq.
Akin, Gump, Strauss, Hauer & Feld, L.L.P.
711 Louisiana Street, South Tower, Suite 1900
Houston, Texas 77002

Attached hereto is a copy of Mr. Pravel's report dated October 5, 2000.

Respectfully submitted,


John P. Pinkerton
Texas State Bar No. 1601670
David P. Poole
Texas State Bar No. 16123750
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ATTORNEYS FOR DEFENDANTS

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION**

**PRINTING RESEARCH, INC. and
HOWARD W. DEMOORE**

Plaintiffs,

v.

JESSE S. WILLIAMSON,

Defendant.

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Civil Action No. 3-99CV1154 - D

**EXPERT WITNESS REPORT OF BERNARR ROE PRAVEL
UNDER FEDERAL RULE 26(a)(2)(B)**

1. I make this report based upon my knowledge as to the factual matters set forth below and upon my own opinions as to matters set forth as such. If called as a witness in this case, I would testify as follows:

2. From 1970 to Dec. 31, 1998, I was the senior partner of the law firm Pravel, Hewitt, Kimball & Krieger, of Houston, Texas, specializing in the fields of intellectual property law and related antitrust fields. I was a partner and shareholder of that firm and predecessor firms since 1956. Since Jan. 1, 1999, I became senior counsel to Akin, Gump, Strauss, Hauer & Feld in Houston, Texas. I am admitted to practice before the United States Supreme Court, before the federal and state courts in Texas, before the United States Patent and Trademark Office, before the Court of Appeals for the Federal Circuit and in various other United States district courts and regional courts of appeal. I have substantial experience in the areas of patent prosecution and intellectual property licensing.

3. I am a Past-President of the American Intellectual Property Law Association (1983-1984). I was Chairman (1991-92) and Council Member (1977-1981) of the American Bar Association, Intellectual Property Law Section; Chairman (1970-71) of the National Council of Patent Law Association; Chairman (1968-69) of the Patent, Trademark & Copyright Section of the State Bar of Texas; Director (1976-79) of the State Bar Board of Texas; President of the Houston Intellectual Property Law Association (1983-84), and Vice-President (1973-74) of the Houston Bar Association.

4. My formal education includes the degree of Bachelor of Science in Chemical Engineering from Rice University (1947) and Juris Doctor with Honors from George Washington University (1951). I am a member of the following honorary societies: Tau Beta Pi (Engineering), Phi Lamda Upsilon (Chemistry) and Order of the Coif (Law).

5. I received the Chairman's 1989 Award of the State Bar of Texas Patent, Trademark & Copyright Section; the Houston Intellectual Property Law Association 1986 Award for Outstanding Service to the Profession; and the State Bar of Texas 1979 Award for Outstanding Contribution to the State Bar of Texas.

6. I am the author of articles in various law reviews and in the Journal of Patent and Trademark Office Society, publications of the Practicing Law Institute, and the American Patent Law Association Journal. I have presented lectures in the field of intellectual property law to various professional groups and conferences, such as the State Bar of Texas, the American Bar Association Intellectual Property Law Section, the Bureau of National Affairs, the University of Baltimore, the Houston Intellectual Property Law Association, the New Orleans Bar Association Intellectual Property Law Section, the Iowa Property Law Association and the National Council

of Intellectual Property Law Associations (National Inventor's Hall of Fame). A list of all publications authored by me within the preceding ten (10) years is attached as Exhibit A.

7. I have previously served as an expert witness on patent issues in over thirty litigation matters. A list of the cases in which I have testified as an expert at trial or by deposition within the preceding four (4) years is attached as Exhibit B.

8. I have had no previous professional or business connections with either of the parties in the present case, nor do I have any such connections at the present time. My professional fees for performing expert consulting are \$350.00 per hour.

9. In 1948-51 I was an Examiner in the United States Patent Office, during which time I examined applications for patents primarily in the chemical and mechanical fields. As a result of this experience and my practice as an attorney before the Patent Office since that time, I am familiar with the practices and procedures for filing and prosecuting applications for United States patents. I am an expert in patent law and procedure before the United States Patent & Trademark Office.

10. I have been asked to review the facts and the law concerning the issues whether Plaintiffs derived the '363 process from Defendants and whether or not Plaintiffs are equitably estopped to proceed with their claim of inventorship, coinventorship of the '363 process. I conclude that Plaintiffs DeMoore, Rendleman and Printing Research, Inc. derived the process of U.S. Pat. 5,630,363 ("the '363 process") from '363 applicants Davis and Williamson. Plaintiffs DeMoore and Rendelman are furthermore equitably estopped from asserting a co-inventorship claim or inventorship claim to the '363 patent, and are not entitled to joint-inventorship status.

11. In reaching the conclusions set forth below and in preparing to present the opinions set forth below, I have reviewed:

- A. U.S. Pat. 5,630,363 to Davis et al.;
- B. The **COMPLAINT** filed in this action on May 20, 1999;
- C. The **FIRST AMENDED ORIGINAL COMPLAINT** filed in this action on September 11, 2000;
- D. A joint declaration submitted under 37 CFR § 1.57(b) filed, in a reissue application by the '363 applicants Davis and Williamson, executed May 20, 1999;
- E. A joint declaration (i) under 37 CFR § 1.131 and (2) Pertaining to Derivation by DeMoore and Printing Research, Inc. of Reissue Applicants' process (hereinafter, "Joint Decl. Under § 1.131"), filed in the same reissue prosecution by reissue applicants Davis and Williamson and executed June 30, 2000;
- F. A patent application and the subsequent file history of United States Serial No. 08/435,798 filed May 4, 1995 by Printing Research, Inc. employees (and Plaintiffs herein) DeMoore and Rendleman, and additionally John W. Bird, encompass at least the time period from May 4, 1995 through November 23, 1998;
- G. The declaration of Steve Baker for the aforesaid reissue application, executed November 3, 1999 (WOO1248-WOO1252);
- H. The deposition of Steve Baker taken in this litigation on August 9, 2000, of 153 pages, and exhibits, and including a corrigendum executed by Baker on September 21, 2000 for said deposition;
- I. The declaration of Scott Brown (WOO1253-WO1257) for the aforesaid reissue application, executed December 30, 1999;

J. The deposition of Scott Brown taken August taken August 10, 2000 taken in this litigation, of 122 pages, and exhibits, and including a corrigendum executed by Brown on September 22, 2000 for said deposition;

K. The declaration of Steve Garner for the reissue application executed April 6, 2000 (WOO1299-WOO1303);

L. The deposition of Steve Garner for the litigation taken August 11, 2000, of 135 pages, and exhibits together, and including a corrigendum signed by Garner on September 21, 2000;

M. A declaration of John W. Bird for said reissue application executed December 11, 1999 (WOO931-WOO943);

N. A supplemental declaration of John W. Bird for said reissue application executed April 3, 2000 (WOO880-WOO929);

O. The first part of a deposition of John W. Bird taken September 12, 2000 in this litigation, of 299 pages, and exhibits;

P. Receipts of a trip to Atlanta by Jesse Williamson and Bill Davis (WOO-2705-002706);

Q. A supplemental declaration of Steve Baker executed October 5, 2000; and

R. A second supplemental declaration of John W. Bird executed October 5, 2000.

L. ISSUE OF DERIVATION

12. The pertinent facts as to derivation are as follows: The '363 applicants, Bill Davis and Jesse Williamson of Williamson Printing Corporation ("WPC") conceived of the invention in June, 1992 upon Williamson's return from Germany to the United States. The

conception was inspired – at least in part – by Jesse Williamson's observation of printing with an anilox roller at the coating tower (end-of-press) at the plant of German press manufacturer M.A.N. – Roland in Offenbach, Germany in late May, 1992. Joint Decl. Under § 1.131, ¶4.

13. Subsequently, in late '92 or early '93, WPC undertook an extended study to find out what presses WPC would purchase to replace its existing outdated presses. Until this study was completed and new press equipment was installed, it was not practical to reduce to practice the '363 process. Joint Decl. Under § 1.131, ¶4. A tentative decision was made in the late spring of 1994 by WPC to proceed with the purchase of a number of Heidelberg presses.

14. Steve Baker of Printing Research met with '363 patentees Bill Davis and Jesse Williamson in mid-1994 and received a disclosure from Williamson of their concept of moving a flexographic station "up front" in a lithographic press, together with several potential ways of performing same – preferably by a conventional "rack-back" mechanism modified for interstation use, and using an anilox roller and chambered doctor. Baker Decl., § 4, 7; Joint Decl. Under § 1.131, ¶6. It now appears from a recently produced receipt from Williamson -- WOO2705 -- that the meeting occurred on June 12, 1994.

15. At approximately the same time that Williamson and Davis told Steve Baker of PRI of their concept of going "up front", they told salesman Scott Brown of Heidelberg USA of their concept. This followed Williamson's continued oral commitment to Heidelberg to purchase a substantial amount of press equipment in June 1994. Brown Decl. ¶2 Williamson – Davis told Brown, as they had told Baker, of several different ways that going "up front" with a flexographic press could be accomplished. They wanted tests to perform or at least simulate their process to occur at Heidelberg in Germany. Brown Decl., ¶2.

16. When Baker came back to Dallas from the Atlanta area in mid-1994, he told PRI executives John Bird and Steve Garner of the process. Bird Decl., ¶9. As stated by Baker in his deposition:

A. I didn't see Howard DeMoore. *The first person I saw was John Bird when I got back.*

Q. Is it your testimony you told the first person you saw?

A. *No, I told the first person that had authority to hear it that I saw.*

Q. That what?

A. I told the first person that I had authority – that had authority over me to hear it.

Q. Were you given a list of people that had a right to this information?

A. Of course not.

Q. Did you – we may have misunderstood each other. *Did you ever tell Howard DeMoore this confidence?*

A. *Yes.*

Q. When?

A. I don't remember the exact day, but I remember talking to Howard on several occasions about what was going on at Williamson Printing. After all, Williamson was our customer. Howard ran the company. He needed to know.

Q. Did you tell him about the meeting and the discussion at the meeting?

A. I don't recall exactly doing that, but I know I did. I know we talked about everything that went on in Atlanta at one point or another with Howard, and I don't recall when I did that with Hoard. I don't recall seeing Howard upon returning to Dallas from Atlanta. I don't recall him being in the office at that moment. (Emphasis italics)

Baker Dep., p. 64, ln 5-p. 65, ln. 9. Specifically, Baker communicated to Bird and perhaps Garner the intent of Davis and Williamson to improve the WPC's prior art WIMS process (U.S. Pat. 5,370,976) by "going up front", together with the three options Brown Decl., ¶ 9. Baker, by recent declaration, testified that Bird and DeMoore were told of the '363 process invention on or about June 15-16, 1994 (Bird corroborates this testimony in his Second Supplemental Declaration, but pins the date down specifically to June 15, 1994):

"I have been shown travel receipts of Jesse Williamson, having production numbers W002705-2706, Exhibit "A" hereto. I note on document W002705 a reference to "Morton's Buckhead" restaurant for June 12, 1994. A calendar for June 1994, Exhibit "B" hereto, shows June 12th to be Sunday. I therefore met with Jesse Williamson and Bill Davis in Atlanta, Georgia on Sunday, June 12, 1994. As indicated in paragraph 4 of my prior declaration, the meeting was indeed on a Sunday. The rest of the Atlanta events I testified to in paragraphs 4-7 and the first sentence of paragraph 8 are accurate.

"The calendar and the receipt further refresh my recollection. I came back to Dallas several days later - either Tuesday the 14th or Wednesday the 15th, as I recall. The morning following my return, I met with John Bird in Bird's office. Jesse and Bill's desires presented quite an opportunity for PRI. I have a vivid recollection of this meeting, and I told Bird what Jesse and Bill had told me in the Morton's restaurant, as stated in paragraphs 5-7 and the first sentence of paragraph 8 of my prior declaration.

"I also recall telling Howard DeMoore, immediately after telling Bird, that Jesse and Bill desired to go "up front" with a modified "rack-back" having an anilox roller and chambered doctor. The trip to Atlanta was a high profile event inside PRI, and telling Bird and DeMoore of what went on there occurred immediately upon my return. DeMoore

needed to know -- he ran the company. I believe I also told Steve Garner."

Note, also the deposition testimony of Bird:

Q. Okay. When did you first learn about the flexographic/lithographic in-line process as in the patent, Exhibit. 6?

A. The process?

Q. Yes, the process.

A. The process was first described to me after a visit of -- that occurred somewhere in July of ninety -- I'd have to look at my notes -- it's July '94, wherein Steve Baker, who was at the time one of our sales people, had gone to Atlanta to demonstrate both UV, and had gone to demonstrate a high-velocity hot air drying system and a Plate/Blanket Coater to both Jesse Williamson and Bill Davis.

When -- on Steve's return from Atlanta, Steve was somewhat excited to tell us that Williamson Printing had a patent pending, although that wasn't always clear to me whether it was pending or it was issued.

But certainly he talked of a process wherein WIMS, Williamson Integrated Metallic Systems, had been -- certainly had a patent applied for as a process patent, and that Williamson Printing was looking at an improvement on that method of application with metallics, and that they and felt that the -- and this was over a dinner meeting in the evening as sometimes happens in -- in situations like this -- and that they were looking for someone to work with them to produce a -- a coater that would apply flexo, in particular, since they felt that a flexo would be a better way of applying and would give them a more brilliant finish.

And they had previously seen some trials wherein flexo had been applied with metallics that they felt that this, if we were interested -- if they could find someone interested enough and since we made coaters, that we might be someone that could work with and/or sell them a piece of equipment to achieve the goal of applying metallics in-line as part of their process and their process patent as part of this improvement that they were looking for.

Bird Dep., p. 57, ln. 24 p. 59, ln. 12.

17. After Baker's return, Bird started frequent meetings with the '363 patentees - first meeting August 18, 1994 - whereby Bird was told the intimate details of the Davis - Williamson process. Bird Supp. Decl., ¶¶ 3-4.

18. There were many meetings in the late summer and early fall of 1994. See Garner Dep., p. 69, p. 108, on. 9; Bird Dep., p. 225, lns 2-11. In a number of these meetings, both Davis and Williamson attended. Bird Supp. Decl., ¶2.

19. PRI started in earnest the fabrication of an experimental "ferris wheel" (or cantilevered), interstation "rack-back" device to practice the '363 process in the late fall of 1994, specifically December, 1994. Bird Dep., p. 72, ln 16 - p. 75, ln. 14.

20. At the time that Baker told Garner and Bird of the Davis and Williamson "up front" concept, Garner was Vice President of Sales, and Bird was a Product Manager within the company.

21. The undersigned has been made aware that the earliest contention that DeMoore has of having the concept of going "up front" in a lithographic press with a flexographic step occurred on July 7, 1994, at a conference with his patent counsel.

22. This is several weeks later than the June 12, 1994 meeting with Baker. DeMoore has contended in both his original **COMPLAINT** (May 20, 1999) and his recently-filed **AMENDED COMPLAINT** that his and Rendleman's conception was "in 1994" (¶ 113), but mentions only that writings evidencing his conception started in December, 1994 (¶ 14):

"Beginning in 1994, DeMoore and Rendleman conceived of and began development of the Lithoflex® system. No later than October of 1994, Plaintiffs tested certain flexographic coating technology using a two-color Heidelberg lithographic press (the "pilot press") located at a Printing Research facility. The testing produced samples (the "flexographic samples") illustrating potential application of that technology. *No later than December 1994, Rendleman had reduced to drawings the concept of a printer/coater unit (the "Rendleman coater")*

that would move on a retractable mechanism with a ferris-wheel-type motion. The mechanism permitted the printer/coater unit to easily convert an upstream lithographic station to flexographic printing for employing the Lithoflex® process and this made it possible for the practical application of such process.” (Emphasis supplied)

23. Regardless, it is inconceivable that DeMoore was not told of the June 12, 1994 disclosure to Baker at the restaurant meeting in Atlanta by Garner and Bird, his subordinates. The fact that DeMoore was working within this company with Bird on the coater project is shown by the patent application that he, Bird and Rendleman subsequently filed on May 4, 1995, in which the Davis - Williamson “up front” concept was disclosed, but not claimed.

II. ISSUE OF EQUITABLE ESTOPPEL

24. The pertinent facts as to the issue of equitable estoppel are as follows: The ‘363 applicants Davis and Williamson had a meeting with PRI representatives in January, 1995 at the offices of WPC in conference room “E”. At this meeting, Davis and Williamson told Baker and Bird of WPC’s intent to file an application on what came to be the ‘363 patent. Bird Decl., § 14. As testified to by Baker at his deposition:

Q. (By Mr. Harris) What do you say?

A. In response to where it says, Defendants admit that Bill Davis and Jesse Williamson informed Steve Baker and John Bird in January of ‘95 that WPC was going to file a patent application for ‘363, I – from this statement, I thought that was understood. That was the *WIMS II* – [corrigendum] patent that we’re always talking about and that it was either pending or they were going to file it; but at that point –

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Q. (By Mr. Harris) I would like for you to answer the question. The question is: Do you have a recollection of that happening? It’s a simple question.

A. I do remember them talking about their patent. Yes. See my testimony in paragraph 10 of my declaration, page 2. The testimony in paragraph 10 is correct.

Q. So what did they say?

A. In exact words, I don't remember.

Q. And when was it?

A. *It would have been January. It would have been after December, so it would have been January of '95.*

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Q. (By Mr. Harris) You don't know what they're thinking, I guess, means that you don't know whether they're stating what happened or not, huh?

A. I don't have one opinion on that one way or the other, other than what I've already said. To me it was all the same. A patent was pending or they're going to file another one. *This time on WIMS II [corrigendum].* It was all the same to me. In '95 – in January of '95, if they told me they were doing that, I am assuming at that point it is the one we have already talked about in '94 and it just had not been filed yet.

Q. (By Mr. Harris) They didn't say the '363 process, did they?

A. They never named them by number because I probably didn't need to know the numbers. *How can they refer to '363 when they haven't filed yet? [corrigendum]*

Baker deposition, p. 136, line 7 to p. 141, line 6.

See also Bird Dep. p. 111, lns. 9-16:

Q. Okay. Tell us what was discussed in that meeting with Williamson and Bill Davis in regard to the flexo/litho process.

A. Jesse told us that they – they, Williamson Printing, were applying for a continuation, an extension, on the improvement on their present WIMS process patent, and that was to include flexographic applications.

In due course, Davis and Williamson filed a patent application, Serial No. 08/515,077, on August 14, 1995, that matured into the '363 patent.

25. PRI through owner, DeMoore and employees, Bird and Rendleman, filed a patent application on May 4, 1995, Serial No. 08/435,798, which did not claim the '363 process.

26. Subsequently, on June 11, 1996, PRI dropped process claims to a different process than claimed in Serial No. 08/435,798 without traverse, indicating that it did not give those process claims a high priority.

27. Serial No. 08/435,798 is still pending, with most claims rejected. From a review of the file history of Serial No. 08/435,798, at no time has DeMoore or PRI ever claim the '363 process since May 4, 1995. As the undersigned is advised, PRI did not indicate until March of 1999 that it considered that PRI employees were joint inventors of the '363 process, despite the fact that PRI was very active in the filing of patent applications, and only after PRI was not receiving the license terms it felt it deserved during negotiations early in 1999.

28. PRI has taken the position in its **COMPLAINT** and **FIRST AMENDED ORIGINAL COMPLAINT** that it did not know about the '363 patent until it was informed of that fact by a third party and potential customer – Hallmark – in December, 1998. Former PRI Vice-President Garner believes the true date was a year earlier “end of '97 or early '98”. (Garner, Dep., p. 115, ln. 11). Regardless, PRI took no position in the PTO or the courts to challenge the inventorship of the '363, having known of Davis and Williamson's intent to file a patent application since January of 1995, and failed to pursue claims to the '363 invention during a four-year, four-month pending of Serial No. 08,435,798, despite the fact that DeMoore has been represented in the prosecution of Serial No. 08/435,798 by no less than three very large Dallas law firms. DeMoore's apparent familiarity and experience with the patent system coupled

with his failure to claim the '363 process in any of his patent applications must be seen as acquiescence, if not an intentional abandonment.

ANALYSIS

29. Derivation can be shown by a communication of a complete or partial concept to the party charged with derivation. Showing a prior, complete conception and communication thereof is not the only way to establish derivation. The burden of proof is on the party asserting derivation. That burden is independent of the senior or junior status of the parties. *Id.* Hedgewick v. Akers, 497 F.2d 905, 908, n. 4 (C.C.P.A. 1974). It is well settled law that once proved, transmission of an inventor's own prior work will not anticipate his later invention unless that prior work is such to constitute a statutory bar. In re Costello, 717 F.2d 1346, 219 U.S.P.Q. 389 (Fed. Cir. 1983); note also Chisum, 1 PATENTS § 3.08[2] (5/88). The burden is on the party asserting derivation by a preponderance of the evidence.

30. The evidence clearly shows that as of June, 1994, the '363 patentees were in possession of a comprehensive concept, if not a complete conception of the later-claimed '363 invention. The '363 patentees testified to as much. The '363 patentees chose to explore the possibilities of reducing to practice their concept either by use of a dedicated station – to be manufactured by Heidelberg, selling them a number of new processes – or by a modification of a prior art auxiliary “rack back” having an anilox roller and a chambered doctor.

31. That concept was communicated by the '363 patentees to Steve Baker in Atlanta in a restaurant on June 12, 1994, with the intent to induce Baker to explore the possibilities of his company manufacturing such a modified “rack-back.” Baker, upon returning to his office, told Bird, DeMoore and possibly Garner. Such corroborated transmission of the concept to PRI by the team of PRI employees admitted by PRI to have worked on PRI's apparatus to perform the

concept – Bird, Rendleman, and DeMoore, the applicants of Serial No. 08/435,798 – is sufficient to carry Defendants' burden of proof as to derivation by a preponderance of the evidence. Hedgewick, supra; In re Mathews, 408 F.2d 1393, 161 U.S.P.Q. 1393 (CCPA 1969); and In re Kaplan, 789 F.2d 1574, 229 U.S.P.Q. 678 (CCPA 1986).

32. Equitable estoppel may apply where there is (1) unreasonable and inexcusable delay in filing suit, (2) prejudice to the defendant as a result of the delay, (3) affirmative conduct by the party against whom estoppel is asserted inducing the belief it abandoned its claim, and (4) detrimental reliance by the party asserting estoppel. Hottel Corp. v. Seaman Corp., 833 F.2d 1570, 1573, 4 U.S.P.Q.2d 1939, 1941 (Fed. Cir. 1987); MCV, Inc. v. King-Seely Thermos Co., 870 F.2d 1568, 1571 (Fed. Cir. 1989).

33. The '363 patentees communicated to PRI employees Bird and Baker in January, 1995 that they would file an application on what they considered to be their new, improved process. Bird testified that he considered the process to be that of the '363 patentees and made no objection.

34. The PRI team – Bird, Rendelman and DeMoore – filed their patent application on May 4, 1995 but did not claim the '363 process. In fact, at no time to date did they amend their claims in Serial No. 08/435,798, even within the one year period permitted by law after the issuance of the '363 patent on May 20, 1997, to copy any of the issued '363 claims. Significantly, former PRI Vice-President Garner testified that they knew about the '363 patent in late 1997 or early 1998.

35. Despite Garner's testimony, DeMoore and PRI indicated in their COMPLAINT that they did not know about the '363 patent until December, 1998 and learned about it only through a potential customer. This contention lacks any credibility whatsoever, given

DeMoore's intense interest in patents, his interest in a device to practice the '363 process, his financial interest in the equipment to practice the process, and his financial losses alleged in his Complaint. I have had many small to medium-size clients who were manufacturing mechanical devices, and periodic review of the patent literature for competitive patents is commonplace. DeMoore's allegation of learning about the issuance of the '363 patent in December, 1998 is unbelievable.

36. Regardless, PRI's delay in pursuing any claim to the '363 invention or filing suit – of over four years – was unreasonable. MCV, *supra*. The first element of the Hottel test has been met.

37. Defendant WPC's only hope of realizing significant income from the '363 process – other than selling printed materials made according to the process – is by licensing the '363 process to others. As long as an inventorship fight hangs as a cloud over the '363 patent, licensing possibilities are remote, if not impossible. The second element of Hottel has clearly been not.

38. PRI, having been told of the forthcoming filing of the application for the '363 process in January, 1995 and having done nothing in 1995, 1996, 1997 or 1998 to copy the '363 claims, while at the same time continuing to do business with Defendants during that time period, including, but not limited to, the construction and delivery of interstation coaters and driers in 1995-1997, induced Defendants into reasonably believing PRI would not assert any claims of the '363 process. The third element of Hottel has been met.

39. Defendants acted to their detriment in relying on Plaintiffs' acquiescence concerning their failure to claim the '363 process. Defendants could have gone to any one of a number of different "rack-back" manufacturers to develop an alternative "rack-back" in 1995-

1998, which manufacturers were identified in the Garner and Bird depositions. Instead, the declaration and deposition testimony shows that Printing Research installed at least three interstation machines in the period 1995-1997, that Williamson paid for the machines manufactured for them at their request to perform the '363 process, and proceeded to try to work out their difficulties with Printing Research. The fourth and final element of Hougl has therefore been met. The letters attached to the Rule 57(b) declaration of '363 patentees indicated that PRI did not object to the identity of the '363 patentees as solely consisting of Williamson Printing Corporation employees Davis and Williamson until March, 1999 during license negotiations. After prosecuting Serial No. 08/435,798 for four years without claiming the '363 process, and after being told before they filed their application by Davis and Williamson that the latter would file an application on that process, plaintiffs are estopped to pursue claims of inventorship of the '363 process. MCV.

10. The opinions given herein are based solely on the testimony and other documents listed in item 11 above, which the undersigned has reviewed, and the undersigned reserves the right to change, to alter or to enhance his testimony upon the review of additional testimony or other documents.

October 5, 2000
Date


B. R. Pravri
BERNARD ROE PRAVRI.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Defendants' Initial Designation of Experts with the attached report of Bernarr R. Pravel was served on Plaintiffs' counsel by hand delivering true and correct copies thereof to the offices of Plaintiffs' counsel on the 5th day of October, 2000, addressed as follows:

William D. Harris, Jr.
LOCKE LIDDELL & SAPP, LLP
2200 Ross Ave., Suite 2200
Dallas, Texas 75201

Martin J. Sweeney
COZEN AND O'CONNOR
1717 Main Street, 2300 Bank One Centre
Dallas, Texas 75201



John P. Pinkerton

THE UNIVERSITY OF CHICAGO

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

PRINTING RESEARCH, INC.,
HOWARD W. DEMOORE,

Plaintiffs,

v.

WILLIAMSON PRINTING CORP.,
BILL L. DAVIS, and
JESSE S. WILLIAMSON,

Defendants.

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CIVIL ACTION NO. 3-99CV1154-M

PLAINTIFFS' EXPERT DESIGNATION AND REPORTS

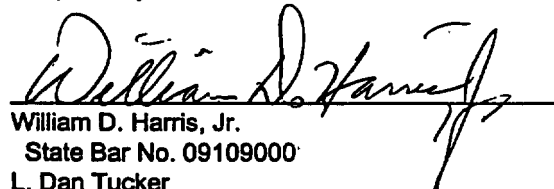
Plaintiffs, Printing Research, Inc. and Howard W. DeMoore, (collectively "Plaintiffs"), designate the following as experts for this action and herewith submit their reports as Exhibit A and Exhibit B under Rule 26(a)(2):

Professor W.S. Mott
2359 Leona Avenue
San Luis Obispo, CA 93401-5368

Warren B. Kice
Haynes and Boone, LLP
901 Main Street, Suite 3100
Dallas, Texas 75202-3789

The report of Dr. Mott, who lives in California, was sent by fax. A signed ribbon copy will be tendered for filing when it arrives. It is expected on October 6, 2000.

Respectfully submitted:


William D. Harris, Jr.
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ATTORNEYS FOR PLAINTIFFS

CERTIFICATE OF SERVICE

I hereby certify that the foregoing "Plaintiffs' Expert Designation and Reports" was served on Defendants' counsel by United States Postal Service Express Mail on October 5, 2000:

John P. Pinkerton
WORSHAM, FORSYTHE & WOOLDRIDGE, L.L.P.
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Dallas, Texas 75201
(214) 979-3065
(214) 880-0011 (Facsimile)


Attorney for Plaintiffs

FROM : W S MOTT

FAX NO. : 1 805 545 8723

Oct. 05 2000 07:13AM P2

EXHIBIT A

Prof. W.S. Mott

Printing Technology Consultant
2359 Leona Avenue
San Luis Obispo, CA 93401-5368
Voice 805-544-5339
Fax 805-545-8723
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William D. Harris, Jr, Esq.
Locke Liddell & Sapp, LLP
2200 Ross Avenue, Suite 2200
Dallas, TX 75201-6776

REPORT

My name is William Stephen Mott, my Curriculum Vitae is attached. My printing industry experience extends from 1958 to the present. I was employed in the printing industry for approximately 10 years prior to accepting a position at the University. Currently I am a professor of Graphic Communication at California Polytechnic State University at San Luis Obispo where I have been employed for 32 years specializing in sheet fed offset lithography and the control of its quality. My teaching assignment also includes instruction on papers and inks. I conduct undergraduate classes, provide consulting services to the industry, and teach continuing education seminars to industry personnel.

I have been retained as an expert witness by the law offices of Locke Liddell and Sapp LLP. My compensation is \$150 per hour for research and \$300 per hour for testimony. I am familiar with Printing Research, Inc., but have never been employed by that company. I performed work as a consultant in the case of Printing Research Inc. vs International Paper Co. through the engagement by outside counsel for Printing Research Inc. I have not given testimony in court or by deposition within the past four years.

I have read portions of:

Patents 5,370,976 and 5,630,363 held by Williamson Printing Corporation;
Specification Accompanying Patent Application of the named Inventors
Rendleman, DeMoore and Bird filed May 4, 1995;
Joint Declaration under 37 C.F.R. §1.57(b) of Davis & Williamson of May 20, 1999;
Joint Declaration under 37 C.F.R. §1.131 of Davis & Williamson of June 30, 2000;
Supplemental Joint Declaration of Davis & Williamson of May 9, 2000;
Summary of Interview for July 20, 2000;
Deposition of Steven Baker of August 9, 2000;
Deposition of Scott Brown of August 10, 2000;

Deposition of Steve Garner of August 11, 2000;
Graphic Arts Monthly magazine article of June 1995 "In-Line Coating Spurs
Sheetfed."

Prior to deposition I intend to review:
Deposition of John Bird, Sept. 12, 2000;
Deposition of Bill Davis, Sept. 20, 2000; and
Other depositions that may become available.

I intend to review for the court the basics of printing such as how printing ink is applied to paper and subsequently dries, the differences, advantages and disadvantages of offset lithography and of flexography. I anticipate presenting photographs and diagrams of a multicolor offset lithographic press and of a flexographic printing unit.

The lithographic offset printing process is a planographic rotary process whereby the image and non-image areas on the printing plate are in the same plane and which chemical treatments ensure that ink adheres to some areas and not others. The image is transferred (offset) indirectly from the plate cylinder to a rubber blanket cylinder and finally to the substrate. The plates are thin sheets of aluminum. The inks are viscous polymeric compounds that are applied to the substrate in very thin layers, are generally transparent, and dry over time. Lithographic offset is utilized to print products for industry segments such as corporate annual reports, books, magazines, greeting cards, stationery, invitations, business forms, advertising and promotional items, folding cartons for packaging, and product brochures.

Flexography is a method of direct rotary printing that uses resilient relief image plates of rubber or photopolymer (plastic). The inks are liquids of either solvent or aqueous base which are applied from 50% to 100% greater thickness than lithography and which dry rapidly. This greater film thickness allows for opaque inks to be printed.

Flexography is utilized to print products such as plastic shopping bags, aluminum foil for food product wrappers and consumer items, corrugated shipping boxes, gift wrap paper, wall paper, milk and beverage cartons, folding cartons, paper sacks, tags and labels.

Lithoflex™ is the trademark for a combination of two printing processes by which I mean offset lithography and flexography, both performed on one machine. I will

describe the advantages of Lithoflex™ in that only one pass through a press is required to print both processes and only one press is required. In-line processing reduces the time required to manufacture a product therefor realizing cost reductions. Significant investment savings also occur, as fewer machines are required. I will discuss the differences between convertible and dedicated printing stations on a press.

The Rendleman coater is an accessory device mounted on an offset lithographic press for the purpose of adding flexographic printing capabilities to the that press, i.e., Lithoflex™, which is described in the Patent Application of May 4, 1995 mentioned above. I expect to show still photographs of an operating press which has the Rendleman coater installed and operating. I expect to show video of another Rendleman coater on a test stand. The defendant may view these photographs and/or video at a convenient time and place. I expect to show examples of Lithoflex™ products printed using the Rendleman coater.

I expect to testify that Patent '976 does not state which type of printing plate material is to be used nor does it state the printing process to be used. This information would have to be inferred or assumed by those who are degreed and experienced in the printing industry. The '976 has little, if any, bearing or or relation to the '363 patent.

In my opinion, the disclosure in the May 4, 1995 Patent Application by Printing Research Inc., would enable an experienced, educated person in the commercial printing industry to understand the nature of the device, how it is mounted on an offset lithographic press and the manner in which the device is utilized for printing. It would certainly teach the process of printing in-line in a single pass of flexography followed by one or more lithographic steps.

I was asked to consider when and what constituted a sufficient mental formulation by the inventor(s) of a complete idea for a product or process in the present matter. I was to consider that the idea must be of specific means, not just a desirable end or result, that must be sufficiently complete so as to enable anyone of ordinary skill in the art to reduce the concept to practice. In the context of on-line upstream single pass flexographic printing followed by lithographic printing, the ferris wheel coater

(Rendleman coater) mounted upstream in combination with a multi-station press accomplishes this. The summer of 1994 discussions between Howard DeMoore and Ronald Rendleman, followed by the sketches of the winter of 1994, and particularly of December 30, 1994 by Rendleman meet the foregoing requirements.

In a broader sense, the summer disclosure of Mr. DeMoore to Mr. Rendleman by which his thinking or concept was disclosed by his inquiry to Mr. Rendleman of whether he could place a coater interstage discloses the recognition by Mr. DeMoore of the desirability of having a convertible (from lithographic) flexographic step or station upstream of lithographic stations. This convertible concept contrasts with a dedicated flexographic station to provide the upstream flexographic step. When the ferris wheel type coater is used the concept involves the use of a convertible flexo/litho station. I have not yet formulated an opinion as to whether the disclosure involving only generally flexo before litho (single pass) constitutes a sufficiently complete idea to teach one how to practice or perform but I expect to supplement this report if I do. I do believe now that this is a broad idea that may be short of a concrete concept. The addition of a convertible printing station with a Rendleman coater provides a specific means to accomplish the desired result.

Also, I have noted the lack of a specific means in many of the concepts of 1994 testified by affidavit and deposition. I believe the scope of the invention(s) at issue may be ultimately of some importance in determining this matter, but not being a patent lawyer nor an expert on patent law, I cannot speak to ultimate points of law in my opinions.

I am of the opinion that the language and teaching in Patent Application filed May 4, 1995 is quite sufficient to teach one of ordinary skill in the art how to practice the invention ultimately described in the '363 patent. This is based on a review of the May 4, 1995 application and the '363 patent. Moreover, I also believe that the May 4, 1995 application likewise teaches how to practice the concepts developed by DeMoore and Rendleman that are described above in the preceding paragraph.

The drawing dated Dec. 30, 1994 from Printing Research is virtually identical to the mechanism illustrated in the Application of May 4, 1995 and in my opinion is one and

FROM : W S MOTT

FAX NO. : 1 805 545 8723

Oct. 05 2000 07:16AM P6

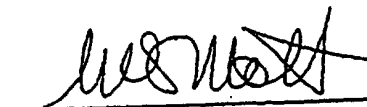
the same. Moreover, it is essentially the same as sketched in Figure 2 of the '363 Patent, and it clearly suggests the Lithoflex™ process.

The simulation of a two color in-line process by instead printing those two colors in two separate passes reveals little of the feasibility of the in-line process, only the desirability, as the dynamics of ink drying and trapping are significantly different between the two methods.

I am not a patent attorney nor am I skilled in the law of patents. I express no views, opinions of what is and what isn't an invention or who is entitled to priority of invention, I speak only to the extent that I am given definitions or tests or hypothesis to consider.

I reserve the right to supplement my opinion as I become aware of additional materials that might make supplementation reasonably necessary.

This testimony will be based upon my observations, expertise, and 40 years experience in the printing industry plus the materials I have reviewed in the case (see above).



William Stephen Mott

October 4, 2000

CURRICULUM VITAE

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EDUCATION:

M.A., Education--Specialization in Curriculum and Instruction,
California Polytechnic State University, SLO, 1973
B.S., Printing Engineering, California State Polytechnic College, SLO, 1959

PROFESSIONAL EXPERIENCE:

Professor, Graphic Communication Department, 1982 to present, specializing in sheet fed offset lithography and its quality control, papers and inks
Acting Department Head, Graphic Communication, 1989-90
Associate Professor, Graphic Comm. Dept., 1977-1982
Assistant Professor, Graphic Comm. Dept., 1972-1977

RELATED PROFESSIONAL EXPERIENCE:

Expert witness in six actions, 1993 to 1999
Consultant to more than 25 clients in printing industry, 1974 to present
Education Consultant, Heidelberg West, Inc., 1985-86
Equipment Technician II, Graphic Comm. Dept., 1968-1972
Supervising Press operator, Comm. Printers Co., Tucson, 1963-1968

APPLIED RESEARCH PROJECTS:

New Product Development, Hurst Corp., 1999
New Product Testing, Boise Cascade Corp., 1999
Print Quality--Color Inks, Base-Line Co., 1997
Print Quality--Black Ink, Base-line Co., 1997
Plate Print Quality Testing, Base-Line Co., 1996

CONSULTING ACTIVITIES:

Blake Printery, San Luis Obispo, 1995, Color Control with Spectrophotometers
DowBrands, Inc., Indianapolis, 1991, Printing Specifications
Potlatch Corp., Idaho, 1991, Print Quality Analysis
United Nations, Intl. Trade Center, Export Promotion Project for S.E. Asia, Bangkok, 1990
Heidelberg West, Inc., San Francisco, 1990, Air Quality Measurements
Sun Chemical Corp. (GPI), San Luis Obispo, February 1990, Process Color
Calif. State Employees Assn., San Jose, March 1989, Process Color Printing
Weyerhaeuser Company, 1989, Flexography Printability Testing
Printing Impressions Company, Santa Barbara, 1988, Equipment Acquisition
Gaylord Corp., 1987, Flexographic Printability Testing
Weyerhaeuser Company, 1987, Lithographic Printability Testing
Mervyn's, Hayward, Calif., 1986, Process Color Printing
Speedway Copy Systems, San Francisco, 1986, Process Color Printing
Heidelberg West, Inc., San Francisco, 1985-6, training curricula & techniques
U.S. Penitentiary, Lompoc, CA, rehabilitation printing technology, 1984-85
Thirteen other firms. Consultant services provided in areas of equipment acquisitions, modifications and repairs, operational techniques, employee training 1974-83

PARTICIPATION IN PROFESSIONAL ASSOCIATIONS AND ORGANIZATIONS:

Group Discussion Leader, GAERF Teacher Conference, Philadelphia, 1994

Active Memberships in:

Graphic Arts Technical Foundation, Sewickley, PA.

Research & Engineering Council, White Stone, VA

PUBLICATIONS, PAPERS PRESENTED:

Articles:

"Getting Levers Off the Presses," Dealer Communicator, Nov. 1989.

"IR and UV Drying" High Volume Printing, June, 1988

"Your Duplicators 'Can Do' Four Color Printing!" Quick Printing, Sept. 1987

"Where Stands Standardization for Sheetfed?" High Volume Printing,
Oct. 1987

"Manufacturers as Educators," Graphic Arts Monthly, July, 1986

"Marketing, Italian Style," Graphic Arts Monthly, November, 1984

"The Metric System in Printing," Printing Journal of N. California, 1975

Books:

Printing Four Color Process on a Duplicator or Small Press. San Luis Obispo (CA), 1992, Graphic Services+Seminars.

Papers presented:

"Where Stands Standardization for Sheetfed? A Study of the Practices and Attitudes of Sheetfed Commercial Printers in the West." Technical Association of the Graphic Arts (TAGA), March, 1987.

EXHIBIT B

Printing Research, Inc. v. Williamson Printing Corporation

LEGAL EXPERT'S REPORT

My name is Warren Kice and my curriculum vitae is attached. I have been a partner with the law firm of Haynes and Boone since 1987 and have 37 years of experience in patent law. I have been retained as an expert witness by the law firm of Locke, Liddell and Sapp. My compensation is \$410 per hour.

In the past, I have been designated as an expert witness and deposed in the following lawsuits:

1. Printing Research v. John Bird d/b/a JB Machinery, Inc.; JB Machinery, Inc., and Absolute Images, Inc. d/b/a The Nelson Group, Inc.
2. Mountain Math, Inc. v. Summit Educational Enterprises, Inc.

My latest publication is a document entitled: "Writing and Prosecuting Winning Patents, published on August 26, 2000.

In connection with the present lawsuit I have reviewed at least a portion of each of the following documents:

1. Patent Application entitled "RETRACTABLE INKING/COATING APPARATUS HAVING FERRIS MOVEMENT BETWEEN PRINTING UNITS";
2. U.S. Patent 5,630,363
3. Joint Declaration (1) Under 37 C.F.R. § 1.131 AND (2) Pertaining To Derivation By DeMoore and Printing Research, Inc. of Reissue Applicants' Invention of Bill L. Davis and Jesse S. Williamson;
4. Joint Declaration Submitted Under 37 C.F.R. § 1.57(b) of Bill L. Davis and Jesse S. Williamson;
5. Supplemental Joint Reissue Declaration of Bill L. Davis and Jesse S. Williamson;
6. Summary of Interview Under 37 C.F.R. §1.133;
7. Reissue Declaration of Bill L. Davis and Jesse S. Williamson;
8. Various Patent Statutes;
9. Various Sections of the Manual of Patent Examining Procedure;
10. Prof. W. S. Mott's Draft Report.

I intend to review for the court the basis of some areas of the patent law as they may apply to this lawsuit. Included will possibly be the basics of inventorship including joint inventorship; conception, reduction to practice and diligence; and possibly derivation of invention.

More particularly, I expect to testify that certain employees, possibly including Howard DeMoore and Ronald Rendleman, of Printing Research, Inc. may be, in fact, the inventors of the invention disclosed and claimed in U.S. Patent No. 5, 630,363 (the "363 patent"), or at least joint inventors with the currently named inventors of the '363 patent.

I may testify as to the impact of discussions in the summer of 1994 between Messrs. DeMoore and Rendleman of Printing Research, Inc., followed by the sketches of late December 1994 as they apply to conception of the invention disclosed and claimed in the '363 patent.

I may testify as to the derivation of the aforementioned DeMoore and Rendleman invention by employees of Williamson Printing Company as a result of interaction between the above parties.

I may testify as to the scope of the invention in the '363 patent, but I am informed that the necessary facts and subjects in this respect have not yet been discovered in this lawsuit to enable me to opine at this time.

My opinions will be based on the documents I have read, the relation by counsel of certain facts he represented were contained in the Rendleman deposition, and the application of the law to the foregoing.



Warren B. Kice
October 5, 2000

CURRICULUM VITAE

WARREN B. KICE

Warren Kice is a partner in the Intellectual Property Section of Haynes and Boone. He has over 35 years of practice of intellectual property law, beginning with a period of employment at the United States Patent and Trademark Office in Washington D.C., as a Patent Examiner. He then entered private practice in Washington D. C. before joining Haynes and Boone in Dallas where he founded the Intellectual Property/Technology Section in 1987.

His practice consists primarily of preparation and prosecution of patent and trademark applications before the U.S. Patent and Trademark Office and litigation of patent and trademark matters, including expert witnessing. Other areas of his expertise include patent and trademark licensing, copyright prosecution and litigation and counseling clients regarding all phases of intellectual property. Related activities include presenting papers and speeches on intellectual property and training younger lawyers in the field.

Mr. Kice has written and prosecuted over 500 patent application in a myriad of technological areas, including power plant equipment (boilers, feedwater, heaters, turbines, fluidized beds), fire protection systems, automotive engines, tire manufacturing equipment, downhole oil field equipment, gasoline dispensing and vapor recovery systems, fluid valves, and electrical cables and connectors.

Mr. Kice is a member of the State Bar of Texas, the Intellectual Property Section of the State of Texas, the American Bar Association Sections on Litigation and Patent, Trademark and Copyright Law, the American Intellectual Property Law Association, the Dallas/Fort Worth Patent Law Association, the Licensing Executive Society and The United States Trademark Association.

Born in Ada, Oklahoma, Mr. Kice earned a degree in mechanical engineering in 1959 from the University of Oklahoma and his law degree in 1962 from the University of Oklahoma.

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